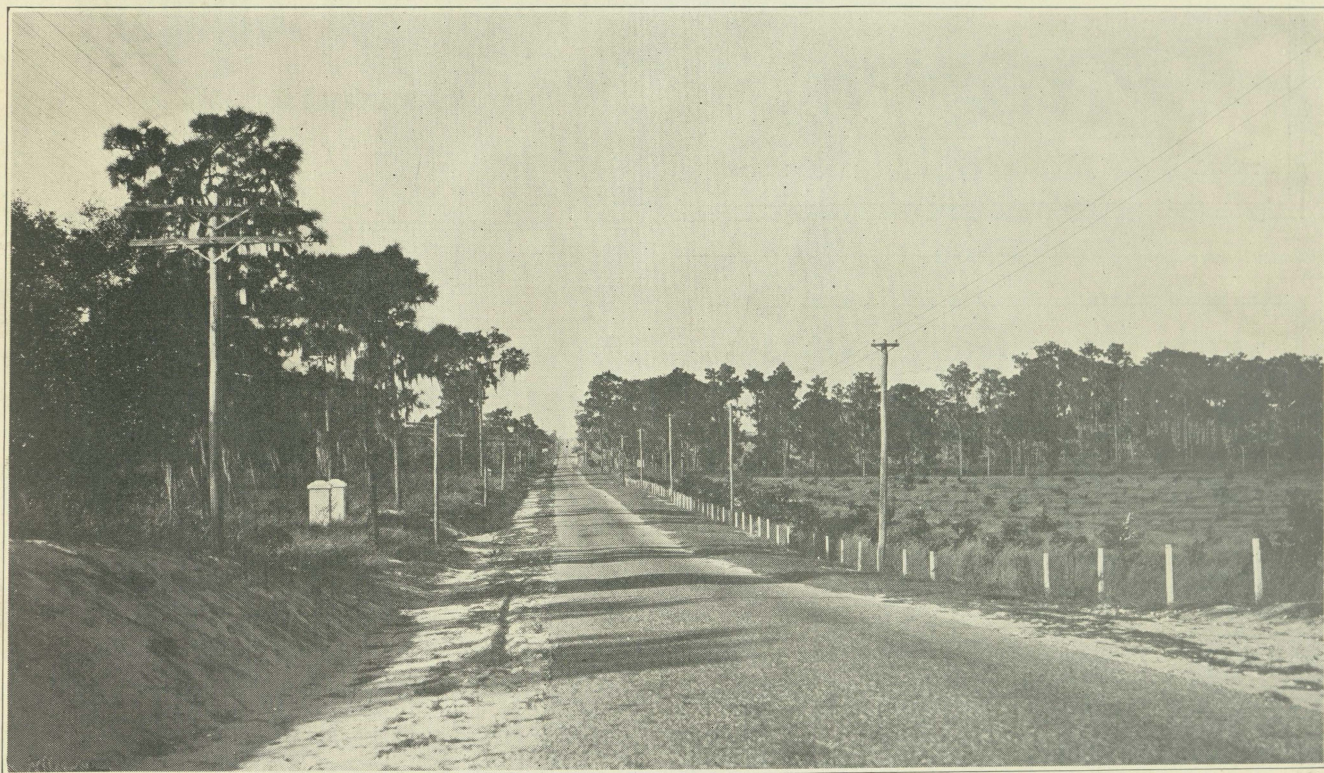


FLORIDA HIGHWAYS

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Vol. VI

No. 12



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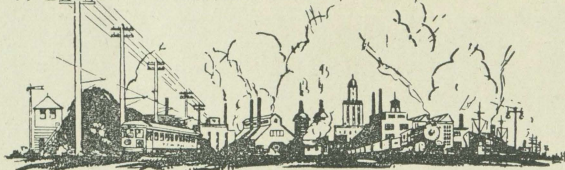
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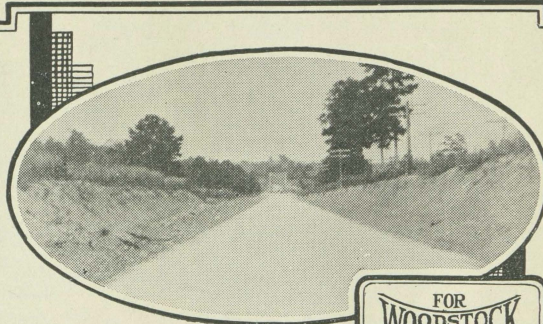
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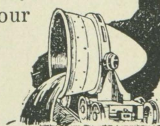
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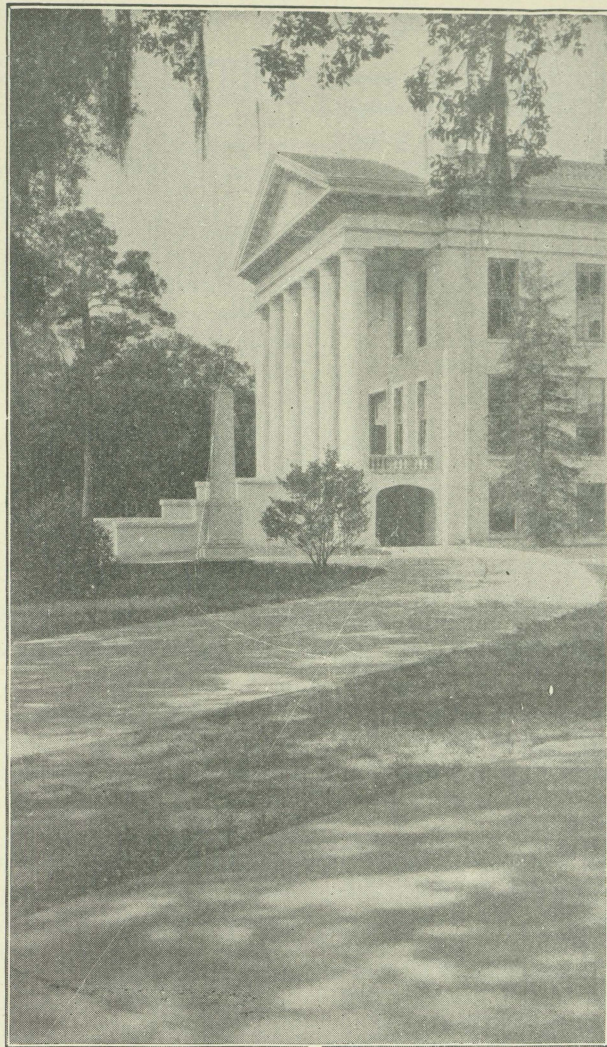
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Vol. VI
No. 12



HIGHWAYS

DECEMBER
1929

Road Building to be Given New Impetus

Highway Officials Make Plans In Line With President's Public Improvement Program.

By JAMES W. BROOKS, Director American Highway Educational Bureau.

IMPELLED by forces now getting behind public work of every character, and especially under the leadership of President Hoover, plans are in the making for increased activity in road building as one of the most far-reaching and constructive agencies in national progress.

In preparation for this objective, and for the consideration of other matters concerning highway improvement, members of the American Association of State Highway Officials have just held their regular annual meeting at San Antonio, Texas. This body is composed exclusively of highway officials who represent every state in the union and who also cooperate closely with the Federal government in the administration of Federal Aid. At this meeting, legislative

and financial needs in highway work for the immediate future were discussed and a resolution was passed recommending to Congress that the Federal Aid appropriation be increased to \$125,000,000.

In carrying on their part of the nation's work, highway officials are stressing the importance of completing the main Federal Aid project as originally planned. This plan, it will be recalled, was to complete state and interstate routes first in order to save motor vehicle revenues from the drain of excessive repair costs where roads are not built sufficiently strong in the first instance to sustain frequent and heavy traffic.

As to the wisdom of proceeding with increased activity on the original program, those in highway

leadership assert that they are in line with President Hoover's engineering views on such matters. These views were expressed in one of his pre-election speeches at St. Louis and again on his recent visit to Cincinnati and Louisville in connection with waterway improvement. Tersely stated, it was the president's expressed judgment that trunk line waterways should be improved first, and highway officials in their recent conferences at San Antonio have again attested to the soundness of that principle as a means of conserving and making the safest possible use of highway construction capital.

Taking the country as a whole, the use of public highways is increasing at an amazing rate, likewise motor vehicle operating waste is increasing where highways have not yet been brought up to modern standards in construction. This situation may be

taken as a lesson that not only should there be no let-up in road building, especially on routes that are heavily traveled, but that public work of this character should be intensified. It may be taken also as a reminder that there should be no evasion of the obligation due to motorists who have acquiesced in gasoline tax levies in the various states upon the assurance that the main traffic channels of the country would be pressed to completion as early as possible and thus take care of between 75 and 85 per cent of the country's traffic before attempting to stretch the Federal Aid principle beyond its present scope.

With the initiative which President Hoover is taking in all internal improvement matters, it is expected that highway building soon will be greatly increased and thereafter maintained at a speed that will insure not only sustained employment in that particular field, but great profit to the country.

High Lights In Highway Progress

For The Information of Motorists

By JAMES W. BROOKS, Director American Highway Educational Bureau, Washington, D. C.

DEFINING "POST" AND "RURAL POST" ROADS

A FALSE conception of improvement needs on rural free delivery mail roads threatens to confuse the public mind at the present session of Congress, in connection with the usual Federal Aid appropriation for highway work.

This false conception arises in the first place from the fact that there is not a proper understanding of the distinction between the original term "post road" and a rural mail road, or "rural post road," as it has come to be known in latter day legislative parlance. The first is the high road of "post chaise" days when taverns and stables marked the principal stopping places enroute, while the second is in no sense a main road requiring equal treatment in the matter of improvement expenditures. The first has developed into the numbered United States or State highway, while the second remains in its original classification as a by-road or community connection with the main route.

Viewed in the light of the original meaning of the word "post", why the by-road is termed also a "post road" for mail purposes is perhaps no more explainable than the reason why steamship departures are still listed as "sailing tomorrow" when, as everyone knows, steam has long since supplanted wind in backing out of the harbor.

But the cold fact, so far as highway progress is concerned, is that the rural mail road, important as it is a communication link, does not share in importance with the main route, and any claim to the contrary is falsely based. For one thing, to attempt to set up a secondary Federal Aid zone when work on the first and most heavily traveled zone is approximately but twenty-six per cent finished, as has been repeatedly stated before, would be to court disaster and endanger secondary road progress with unconstitutional procedure, since the Federal government can deal only through state highway departments and not direct with counties and townships,

in which the major mileage of rural mail roads are located. In a few states, complete state supervision in due time of all roads has been wisely provided for, but until this is done in all states, the Federal government cannot be expected to reach out to back roads, and certainly not before the main roads are much farther advanced in modern construction.

It is claimed that there are 45,000 rural mail carriers using 1,270,746 miles of rural road, practically all of which need improvement, and that to improve this mileage no increase in taxation or gasoline and motor license fees would be necessary, simply a broader use of present funds. Against this group of 45,000 may be set down that larger group of 25,000,000 motor car owners who are justified in their demand that major routes be completed more rapidly and according to program.

For the past few years, Federal Aid appropriations have averaged \$75,000,000 a year for main route construction. No road, even of the least expensive type, can be improved at less than approximately \$2,000 a mile, which would mean considerably over \$2,000,000,000 on rural mail roads. Thereby would hang an almost incredible maintenance tale, for bookkeeping on road repairs already shows conclusively that the first cost is not the last, by any means, particularly in the case of lighter type construction.

It has come to be an American habit of blithely talking about more money than there is, figuratively speaking, regardless of previous commitments or obligations, and this habit seems to be taking hold in the matter of road building. If there are any "hot chestnuts" to be pulled out of the fire for political or road material reasons or otherwise motorists and other taxpayers are not the ones to get their fingers burnt in having their highway capital spread out over too much mileage when it is not yet sufficient to complete the main task.



Project 645, Road 10, Wakulla County.

Secretary of State Names Organizing Commission for International Road Congress

Roy D. Chapin, Detroit, Is President Of Body; Thomas H. MacDonald Secretary-General.

SECRETARY of State Stimson has announced the appointment of Roy D. Chapin, Detroit, chairman of the Highways Committee of the National Automobile Chamber of Commerce, as president of the American Organization Commission in charge of the Sixth International Road Congress to be held in Washington, October 6 to 13, 1930, by invitation of the United States Government. In naming Mr. Chapin, the Secretary acted upon the recommendation of the members of the Organizing Commission.

The Commission acts for the Permanent International Association of Road Congresses, with headquarters in Paris, and functions under the authority of the State Department. Thomas H. MacDonald, chief of the United States Bureau of Public Roads and chairman of the Highway Education Board, was named Secretary-General of the Commission in an earlier announcement.

Other members are: Wilbur J. Carr, Assistant Secretary of State; Thomas R. Taylor, Department of Commerce; Robert P. Hooper, American Automobile Association; Henry G. Shirley, American Association of State Highway Officials; Charles M. Upham, American Road Builders Association; A. J. Brosseau, Chamber of Commerce of the United States; H. H. Rice, Highway Education Board; and Roy D. Chapin, National Automobile Chamber of Commerce.

Headquarters for the Commission have been established in Washington where preliminary arrange-

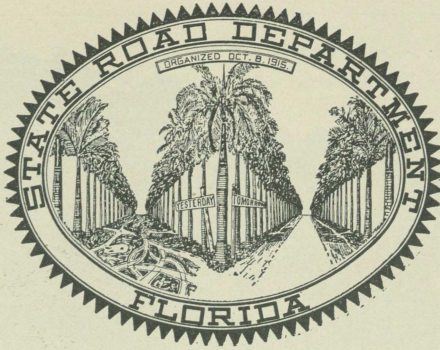
ments for the Congress will be made by the staff. The Congress is expected to bring to the United States from 2,000 to 3,000 delegates, leading highway authorities of their respective countries, representing virtually every nation in the world. It is expected that sessions of the Congress will be held at the offices of the United States Chamber of Commerce.

Previous Congresses have been held at Paris in 1908, in Brussels in 1910, and in London in 1913, in Seville in 1923 and in Milan in 1926. The Congress in Washington next October will mark the first meeting of the International Association in the Western Hemisphere.

At the suggestion of the Organizing Commission, Secretary of State Stimson has transmitted to P. Le Gavrian, Secretary-General of the Permanent Association in Paris, an invitation to visit the United States as guest of the American Commission to confer as to plans for the Congress and arrangements for the care of the visiting delegates.

Mr. MacDonald, who recently returned to the United States from an extended tour of the South American nations following the meeting of the Second Pan-American Highway Congress at Rio de Janeiro, expressed the belief that each of the Latin-American countries visited by the United States delegation will send delegates.

Mr. Chapin, president of the Commission, recently
(Turn to Page 4.)



Florida Highways

Published Monthly
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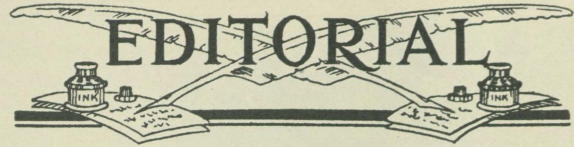
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VOLUME VI December, 1929 Number 12



CHANGES IN PERSONNEL

Mr. Mallie Martin of Crestview has been appointed and has qualified as member of the State Road Department, succeeding Mr. Harvey Bayliss of Pensacola, whose term expired early this month. This appointment covers the third congressional district of the State.

Mr. Martin, who is a veteran of the world war, has been private Secretary to Governor Carlton until November 15th, when he tendered his resignation. On the expiration of Mr. Bayliss' term he was named to succeed the latter. Mr. Martin gives evidence of keen interest in the State's road building programme and has already given a statement to the press covering his views and aims as a member.

Mr. Bayliss, whom he succeeds, was appointed by former Governor Martin during 1925 and was the last of the Martin appointees to hold office as member of the Department.

Effective December 15th, E. K. Fogg of Pensacola succeeds R. L. Bannerman, Division Engineer for the first division. Mr. Bannerman who was one of the oldest of the department's employees in point of service, has been a most capable and efficient division engineer, having a long and intimate knowledge of matters affecting the department. Mr. Fogg, who succeeds him, has already taken up his duties with headquarters at Tallahassee.

SECRETARY OF STATE NAMES ORGANIZING COMMISSION

(Continued from Page 3.)

returned from Paris where he met with the members of the Permanent International Commission regarding program and plans for the forthcoming Congress. He reports that the members of the Commission are enthusiastic over the prospects of visiting the United States to attend the Sixth Congress next year.

New Mexico—The highway department will begin soon to sign-post the state highways with markers of standard design conforming to those in use in other states.

Maine—Portland's new Baxter Boulevard connecting two important areas in its park system is 2.33 miles long and 48 feet wide. It is flanked with esplanades, trees, walks and ornamental planting.

Ontario—The provincial department of highways is using oil extensively as a road binder as well as dust preventive, according to R. M. Smith, Deputy Commissioner of Highways.

California—Licensed automobile operators in California are increasing at the rate of 27,000 every month, according to information collected by the Automobile Club of Southern California.

CONVENTION OF AMERICAN ROAD BUILDERS' ASSOCIATION

PLANs are being rapidly formulated for the greatest highway conference ever held in this nation which leads the world in improved roads.

The twenty-seventh annual convention of the American Road Builders' Association which is to be held January 11-18 in Atlantic City is expected to attract the greatest number of persons interested in road building ever to be gathered together. The record of 30,000 attendance at previous conventions is expected by officials to be broken this year.

To the city officials, county highway officials, engineers, constructors, manufacturers and distributors, educators, Pan-American members and members at large, the convention will offer a comprehensive program. It is based, as usual, on reports of the more than 40 committees that are at work throughout the year.

The city and county officials' divisions will hear the newest ideas in organization and finance of operations; design, construction and maintenance of roads and pavements; control and operation of traffic. The latter report, prepared in four subcommittees, will be of wide interest to the general public.

General committees will discuss standardization and depreciation of road building equipment; highway financing; liens in public construction, and low cost elimination of grade crossings.

New groups will take up the question of building municipal airports, with particular reference to surfacing and engineering; location of highways in respect to facility, economy and safety; grading as applied to all road construction; subgrades and pavement bases, on which a thorough research has been conducted nationally; extension of highway education through a special group of educational authorities.

The convention setting will be the annual road show which will bring several hundred carloads of machinery and equipment to fill the Atlantic City auditorium, the largest in the world.

With the combination of program and exhibits the gathering will be the proving ground of progress in the United States and Latin-American road building industry of the year 1929.

President Hoover Asks Governors To Push Road Building

PPROMISING that the federal government will exert itself to the utmost within its own province of public works, President Hoover has asked the governors of the 48 states for their co-operation and that of municipal and county officials to the same end.

The President said one of the largest factors that could be brought to bear for the absorption of any unemployment which might result from "present disturbed conditions" was that of "the energetic yet prudent pursuit of public works by the federal government and state, municipal and county authorities."

He asked for a canvass of the state, municipal and county programs for the next six months and the next year and announced he was requesting Secretary Lamont of the commerce department "to take in hand the detailed measures of co-operation with you which may arise in this matter."

The telegram sent to each of the governors said:

"With view to giving strength to present economic situation and providing for the absorption of any unemployment which might result from present disturbed conditions, I have asked for collective action of industry in the expansion of construction activities and in stabilization of wages. As I have publicly stated one of the largest factors that can be brought to bear is that of the energetic yet prudent pursuit of public works by the federal government and state, municipal and county authorities.

"The federal government will exert itself to the utmost within its own province and I should like to feel that I have the co-operation of yourself and the municipal, county and other local officials in the same direction. It would be helpful if road, street,

public building and other construction of this type could be speeded up and adjusted in such fashion as to further employment.

"I would also appreciate it if your officials would canvass the state, municipal and county programs and give me such information as you can as to the volume of expenditure that can be prudently arranged for the next twelve months and for the next six months and inform me thereof.

"I am asking Secretary Lamont of the department of commerce to take in hand the detailed measures of co-operation with you which may arise in this matter."

In addition to the above, the following telegram has been received by State Highway Commissioner Grover C. Dillman from W. C. Markham, secretary of the American Association of State Highway Officials:

"President Hoover has wired all governors asking for increased road program for next year. Friday, President Eekles of our association presented Hoover our request for increased Federal aid. Please ask your governor to wire Hoover immediately that increased Federal funds are needed to co-operate in his request. Let me know action taken."

And thus the American Association of State Highway Officials, which has initiated much of the legislation promoting good roads throughout the United States, is actively co-operating with the President to relieve the present unemployment situation by extending road construction during the coming season.

Agriculture also has joined in President Hoover's stabilization movement, by recommending, at a conference with the President this week, an extension of road construction. Construction of new roads,

particularly those which will help the farmer reach his market, was urged both to help take up the slack in employment and aid agriculture.

The recommendation for an extension of road construction fits in with the movement which has widespread support from farm groups, automobile organizations, road builders and others for an increase from \$75,000,000 to \$125,000,000 in the annual appropriation for Federal aid to the states. If this increase is made it is assumed that more of the Federal money would go toward the building of roads which are not through highways, but which would be helpful to farmers residing away from the main thoroughfares. The actual road construction is in charge of the states, which are required to contribute from their own treasuries at least as much as they obtain from the Federal government.

Complete co-operation is evident from the replies which already have been received at Washington. Ohio, an outstanding example, has ordered the letting of highway contracts monthly throughout the winter, which is expected to result in new construction to the amount of \$12,000,000 for the six months of 1930, and for the same period maintenance contracts to the amount of \$6,000,000 in addition.

At the present time Governor Green is at his hunting camp in the upper peninsula and his reply to the telegram, which was forwarded to him, has not been received.—Michigan Roads and Airports.

INTERNATIONAL ROAD MEET AT WASHINGTON, D. C., IN 1930.

Bringing word that several thousand leaders in highway building from all over the world will attend the International Road Congress in Washington from October 7 to 11, 1930, Roy D. Chapin, chairman of the highways committee of the National Automobile Chamber of Commerce and chairman of the Hudson Motor Car Company, returned from abroad recently. The road congress, Mr. Chapin said, will be the largest highway meeting ever organized in the world.

Mr. Chapin conferred with automotive and highway officials during his two and a half months stay in Europe. He was the representative of the United States government at the meeting of the permanent commission of the International Road Congress at Paris. There plans were perfected for the gathering in this country next year of several thousand highway officials and engineers at a world-wide meeting in Washington. They are coming by invitation of the United States government and afterwards the official delegates will make an inspection tour of American highways and study American methods of handling the enormous traffic on roads.

Mr. Chapin was a delegate to the International Chamber of Commerce meeting at Amsterdam, where he was chairman of the highway transport committee. He also represented the American motor industry at the London meeting of the International Association of Motor Vehicle Makers.

"Europe is increasingly finding that motor transport is a distinct economic advantage to national prosperity. Obstacles and prejudices which formerly existed are much less formidable today," said Mr. Chapin. "Countries which have considerable highway systems, such as France, Germany and England, are

rapidly adding to the number of motor cars in use. In all the countries of Europe there is an expanding road program, especially in the more progressive ones. Financing of cars, both wholesale and retail, is being handled much more extensively by large banking groups than formerly.—Michigan Roads and Airports.

ROAD BUILDING AS A MONEY CIRCULATOR

Is money spent like water over the dam? Fortunately not, for the work of a dollar is never done. All too frequently money expended by governmental bodies is regarded by the taxpayer as money that is gone forever, when as a matter of fact, the spending of money by the government gives the dollar at least a double value, writes E. E. Duffy.

First of all, a convenience or improvement is purchased which enables the government to better serve its citizens. Secondly, money spent for improvements goes into the pockets of individuals, and not unstrangely, labor gets more than any other factor.

In the matter of paved highway construction, for instance, labor receives more than half of the total expenditures, as is shown in an analysis of costs made by the Iowa State Highway Commission. In Iowa the construction cost of a mile of concrete pavement has averaged \$26,184, of which 52 per cent, or \$13,706, goes to labor through various channels.

Costs for a mile of highway are distributed as follows: Stone aggregate, \$3,441; cement, \$5,856; reinforcing steel, \$850; freight, \$5,520; grading, \$2,000; miscellaneous contractors' costs, including profits, \$8,517.

From these items labor receives the following amounts: Stone aggregate, \$1,032; cement, \$3,116; reinforcing steel, \$255; freight, \$2,448; grading, \$1,500; and the labor portion of miscellaneous contractors' costs, \$5,355.

Money's greatest value can only be achieved by keeping it in circulation and to do this the stimulating hand of governmental activity is needed. There is not a single community in this country that is not in need of important improvements—some communities need dozens. Planning, although essential, can be dangerous if projects are left in the paper stage too long.

Since government is the one thing which all support, it must naturally be the bulwark in times when clouds gather over the economic sky. Well planned construction programs, which embrace only those projects that will be of actual value to the community, are now needed.—Industrial Index.

Pedestrian's Prayer

Now I leap to cross the street
I pray the Lord to help my feet.
Should I be hit before I cross
I pray 'twill be an easy loss.

—Albany Evening News.

When Bossie Broods

Housewife: "Don't bring me any more of that horrid milk. It is positively blue."

Milkman: "It ain't our fault, lady. It's these long, dull evenings as makes the cows deprest."—Missouri Outlaw.



Dora Canal Bridge, Road 2, Lake County.

Contractors Improving Conditions In The Industry

THE reformation of those methods and conditions that have made for irresponsibility in the construction industry is proceeding so rapidly as to promise early results throughout the nation, declared D. A. Garber, general manager of the Associated General Contractors of America, shortly after the close of the conference of the executive bodies of that organization held at Hartford, Conn., October 7 to 9.

The hundreds of millions of dollars lost in bad accounts, the unwarranted delays in construction, the dual payments forced from owners under existing lien laws and the countless other losses sustained by the public because of existing uneconomic practices were all under review at the executive board meeting, where plans were perfected for promoting the present house-cleaning program of the association.

The task of substituting sound business practices for the prevailing haphazard procedure involves five major objectives, it is stated by Mr. Garber. Each of these will tend to correct conditions which have made for irresponsibility and will become effective at succeeding stages of initiating and carrying forward construction contracts.

Mr. Garber states that the five objectives toward which the various groups in the industry are co-operating include: Prequalification of contractors before being allowed to bid, instituting more rigid examination of contractor applicants for surety bonds, the elimination of loose credit in the sale of construction equipment, greater care in extending banking credit

to contractors and the curbing of loose credit in selling construction materials to contractors.

The significance of these reforms in construction business procedure are said to be as follows:

The system which has long prevailed of awarding work without due regard to the qualifications of the lowest bidder is rapidly being revised through a procedure which provides that public officials shall require contractors to submit evidence of their qualifications before being allowed to bid on proposed work.

Since one measure of a contractor's responsibility has been determined by his ability to secure a performance bond written by a surety company, the second stage of the house-cleaning program has been directed toward a reform of certain practices involved in writing surety bonds.

Co-operation between organized contractors and surety companies has resulted in the launching of the Bureau of Contract Information, Inc., which is gathering the performance records of every contractor in the United States so that factual information may be available to all surety companies when any contractor seeks to secure a bond guaranteeing his own performance.

Through the double scrutiny which a contractor's qualifications will receive in passing the prequalification test given by awarding officials and in passing the past performance examination given by surety companies, it is thought that rampant irresponsibility will be brought under partial control, at least.

The third item on the program being fostered by



Project 594, Road 13, Bradford County, near Starke.

the contractors' association involves co-operation with bankers to the end that banks may more intelligently scrutinize the qualifications of those contractors who apply to them for credit. The procedure advocated involves the use of a standard form of questionnaire devised for bankers, which when filled out is claimed to provide a more accurate picture of a contractor's business condition than the commercial forms ordinarily used satisfactorily by banks in gathering information from mercantile and other such business concerns.

The fourth point of the house-cleaning program involves the development of co-operation between organized contractors and the manufacturers of construction equipment to the end that standard credit terms may be applied in selling equipment. By the adoption of such terms it is expected that when a contractor satisfactorily passes the tests of prequalification so as to be allowed to bid, satisfies his surety as to his past performance record and satisfies his banker as to his financial ability he will still have to buy his equipment on business-like terms rather than expect the equipment companies to grant him credit for indefinite periods.

The fifth house-cleaning procedure involves co-operation with producers and dealers of construction materials to the end that loose credit practices will be eliminated in selling building materials to the industry. This program has already resulted in the promotion of allied construction industry credit bureaus in some fifty cities. In Detroit, Memphis and Los Angeles, where the interchange of credit information is furthest advanced these efforts have not only revealed cumulative credit losses that have totaled well over \$30,000,000, but have already been effective in cutting down delinquencies and weeding out the irresponsible accounts.—Michigan Roads and Airports.

\$175,000,000 GASOLINE TAXES PAID IN SIX MONTH PERIOD

Not counting refunds made, the total amount of the gasoline tax collected by 47 of the States and the District of Columbia in the first six months of 1929 amounted to \$175,140,140, says the Bureau of Public Roads, U. S. Department of Agriculture, on the basis of figures reported to the bureau. In New York the tax became effective May 1, and the Illinois law did not become effective until August 1. A total of 5,693,872,662 gallons was taxed in the 47 States and the District of Columbia. The average tax paid per gallon was 3.07 cents.

In 1928, gasoline tax paid in the first six months of the year in 45 States, the District of Columbia, and in Illinois for one month of the period, was \$140,635,398. The tax in Illinois was collected for January and discontinued in February. Massachusetts and New York had no gasoline tax in 1928. The total number of gallons taxed in the first six months of 1928 was 4,652,393,536, and the average tax paid was 3.02 cents per gallon. All the States now collect a gasoline tax.—Manufacturers Record.

Jones was never an early bird at the office. One morning his boss exclaimed: "Late again! Have you ever done anything on time?"

"Yes, sir," was the meek, but prompt, reply. "I purchased a car."—Motorland.

How To Torture Your Wife

"I'm buying a washing-machine for my wife as a birthday present."

"That will be a surprise, eh?"

"Yes, quite! She's expecting a new car."—Arkansas Highways.

Interrelation of Airway and Highway Transportation

By C. H. PURCELL, State Highway Engineer, California

AIRWAY transportation in the United States is a development which has occurred since the war. At first, the only airway lines were mail lines operated by the Federal government. Some attempts were made by private agencies to establish air routes but they failed for two reasons: the uneconomical performance of available aircraft and the lack of popular air consciousness.

In order that all of us may be more familiar with the subject, I will briefly note some facts regarding the present status of airway transportation and the conditions which are responsible for this development.

In 1925, national legislation was effected, authorizing the postmaster general to advertise for bids on contract air mail routes wherever he deemed advisable. As a result, contract air mail service came into operation during 1926 on a network of air lines and by the latter part of 1927, the postoffice department had relinquished its main line operation to private contractors.

Prior to this time and for a short time thereafter, the government had operated a few trunk air mail routes.

This act terminated direct governmental participation in the operation of commercial air lines and paved the way for inauguration of transeontinental air express and passenger service.

Commencement of commercial airplane transportation in the United States may properly be considered as dating from the spring of 1926, when the first of the contract air mail routes began operations. Subsequently, air mail contracts have been awarded and operations started on more than a score of routes ranging from short line feeders to coast-to-coast service, including a route from Miami, Fla., to the Panama Canal Zone, and routes into Canada and Mexico. That some of these contracts have proven profitable, thus placing airplane transportation in the United States on a sound basis economically, and therefore at an advantage over the subsidized lines of other nations, is indicative of the value that American business places on time and the premium it is willing to pay for rapid transit. Up to the commencement of contract air mail service in this country, the capacity of airplane transportation to earn its way had not been demonstrated. None of the nearly 400 attempts to establish commercial air lines in various parts of the world had revenues from transportation business sufficient to meet operation costs.

The American contract air mail lines were soon to change this. Several of them became definitely profitable after a pioneering period much shorter than is usually required to establish new concerns in older and proven fields of business.

Another important piece of legislation was the Air Commerce act of 1926, which placed upon the Department of Commerce responsibility for developing and maintaining airways, inspecting and licensing aircraft and pilots, and promoting aids to aerial navigation, including radio communication systems.

Airplane passenger service offering daily accommodations on fixed schedule the year around was unknown in the United States until operators of air mail contract routes began to develop passenger traffic as

a source of additional revenue. The first effort in this direction was made in connection with the air-mail operation between Los Angeles and Salt Lake City in May, 1926, when this line was opened to passenger service. Subsequently, popular interest in commercial travel resulted in the development of extensive de luxe passenger service.

Passage of the transeontinental line from government operation to private hands also paved the way for nation-wide air express service. At the inception of contract air mail service, many of the operators offered a field-to-field package delivery, which was not a very satisfactory accommodation and attracted only limited use. The possibilities of such a service had, however, been long under consideration by the express companies whose officials, in the late summer of 1927, negotiated air express contracts with four of the principal air mail carriers. Early in 1928 this air express service was extended to most of the other air mail lines.

The principal services performed by airway transportation are mail, passenger and express.

In industry, finance, law, agriculture, merchandising—wherever time is an element of any transaction, air mail may be turned to advantage. The air mail service of the United States now extends to practically every major city of the nation and correspondence destined for points 600 miles or more distant from postoffice of origination will be advanced several hours in delivery by air mail. The air mail time between Pacific Coast points and New York City is only one-third of the time required by rail mail. With the completion of airway lighting, making night flying possible, there will be but one business day lost between Atlantic and Pacific coast points.

An interesting study deals with the concentration of population necessary to support an air mail operation. Circumstances of location and accessibility through surface transportation agencies will, by influencing the comparative value of airway transportation, affect the air mail volume to be developed in any territory. Generally speaking, excepting where peculiar local conditions intensify the time-saving value, it appears that the air mail volume to be anticipated from any area of less than 300,000 population is insufficient to warrant flying daily, both ways, over a 200-mile airway. As airplane operation costs are lowered and the time between the airport and the delivery to the postoffice is reduced the benefits of air mail may be extended to smaller cities and communities nearer to each other.

At the present time, and until the traveling public becomes better acquainted with airway travel, airway passengers are recruited from three classes: Vacationists who want the experience of flight or desire a quick trip to a week-end resort; business men and women who can turn speed to profitable account; and individuals facing personal emergencies which demand their immediate presence at distant points.

As to the first group, the question of speed is of small consequence excepting as it extends the range within which a limited vacation period may be spent or permits of more playtime by cutting down the time spent in travel. For instance, under presently avail-

able accommodations, a New Yorker desirous of visiting the Pacific Coast and having but one week of vacation would find himself in this situation. By rail, his entire vacation would be consumed in travel on the fastest trains and he would have to make the closest connections in order to complete the journey on time. By airplane only sixty hours would be spent in travel, leaving four and one-half days for recreation. In other words, the airplane has in point of time brought transcontinental travel within range of a vast group of workers who have a minimum of leisure from the necessity of employment.

At one of the recent football games on the Pacific Coast a number of enthusiastic fans came to the game a distance of 400 miles by airplane, while others used the airplane to come 35 miles from a nearby city in order to avoid the usual highway traffic congestion. More than 80 airplanes were parked near the stadium.

It is from the second and third groups, however, that under present costs air travel volume can best be developed on a sound basis. From the standpoint of business, in the main, it is conservation of business time that counts. That is, to offer an advantage the airplane schedule must be such as will make available to the user a greater portion of the business day. An airplane schedule which does not offer such saving over available surface transportation systems has little to attract the patronage of business. For instance, business will not pay a higher rate to travel by airplane between two points if its purpose can be equally well or better served by using the cheaper agencies of surface transportation. With present available equipment travel between two cities 24 hours apart by rail can, by airplane, be accomplished in from six to eight hours. Daylight flying, of course, would so cut into the business day as to make this of small value excepting in emergencies, or in cases where such flight would permit making a night connection with other form of transportation, to final destination with consequent saving of an entire business day.

Night passenger service on the air mail lines has been fairly well patronized, but widespread development of this must wait improved equipment and refined practice.

Passenger airplane service appealing to business for its patronage must be guided by two restrictions on operation. If it is to serve merely the speeding up of long-haul travel, it should aim at covering by flight a distance traversed by rail in approximately 18 to 24 hours at least. That is, from six to eight hours flying time are required to give any decided general advantage. If the service, however, is between two major cities the expenditure of so much daylight time in the air plus the ground time between business districts and airports would consume the entire business day and destroy any general advantage. Three hours of flying plus one hour of ground travel appears to be the maximum that can be taken out of a business day. Such an arrangement leaves the air traveler four business hours, or half a day, in return for the extra charge made for airplane passage. It is, therefore, essential that facilities in such cases provide for night flying so that not more than one-half of the business day will be consumed in the air.

The personal emergency group, of course, have no uniform necessity. From the records of one leading operator, it appears that more of this group charter

special planes than travel on regularly scheduled operations.

Close observation of recent airplane development leads to the conclusion that the airplane may do on the long haul what the automobile has accomplished within the short-haul range. Previously to the advent of the motor vehicle, cities as we know them today were economically impossible. The speed and mobility of the automobile has extended metropolitan influences over a much broader range. The result has been that socially and economically city and country have merged. They retain separate identities only in political form and the present tendency is to eliminate the duplication of administrative effort by combining city and county governments.

It is entirely possible that the airplane, coming into general use, will extend this community interest over areas composed of whole states or parts of several states. Airplane passenger travel may bring points 200 miles distant as close to city hall as are the present outskirts of any large city, providing airport facilities and highways to the business center are adequate. Similarly, by annihilating distance, airplane carriers may draw the great cities of the nation together.

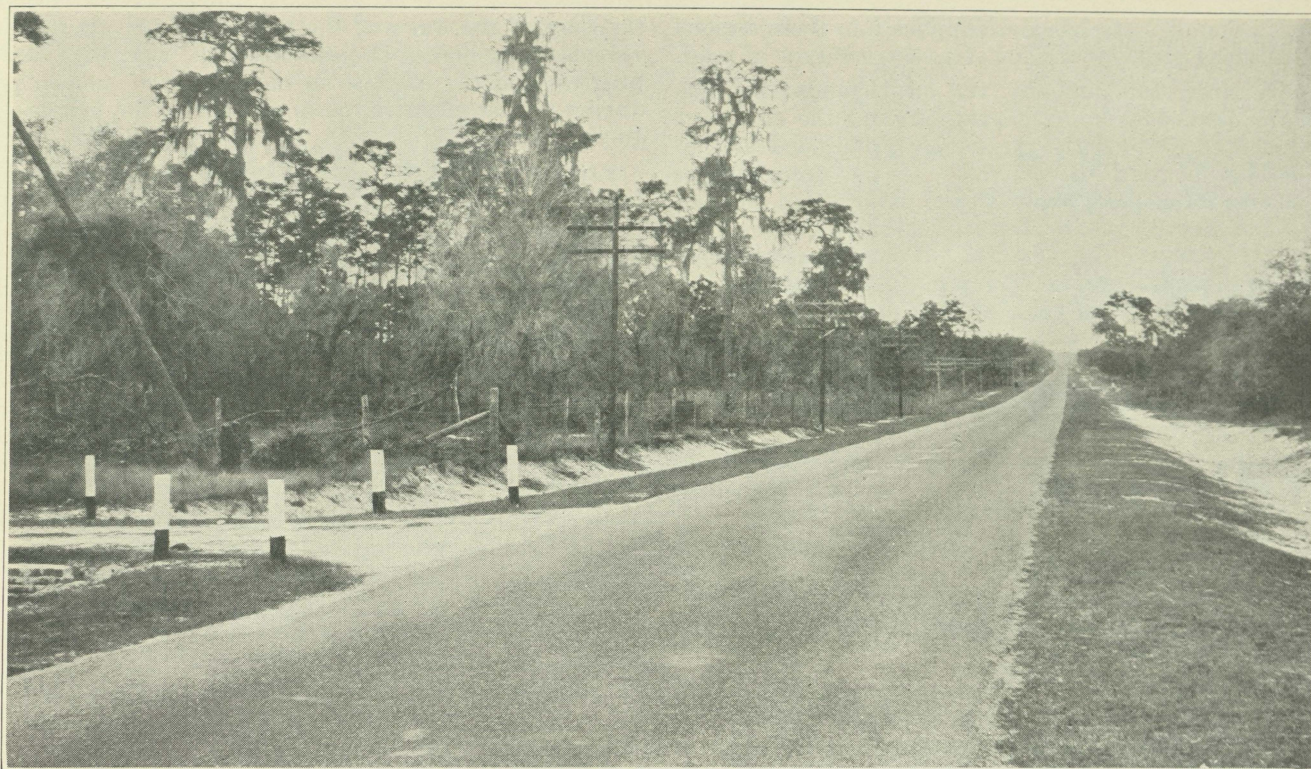
Express is the third class of commodity opened to American airway transportation. While the volume of this type of service has not yet reached large proportions, it may eventually become a very important function of air transportation.

Starting in 1926, the development of airplane transportation has been very rapid until in 1929 there are approximately 30,000 miles of airways of which 11,000 miles are lighted for night flying.

There are established at this time in the United States in excess of 425 municipal airports, 415 privately owned airports and 700 auxiliary airports. At the present time there are about 500 planes carrying mail in the United States. Forty-six air transport companies are flying 85,000 miles per day, about one-third of this mileage being flown during the night. Approximately 500,000 pounds of mail per month are being carried. Figures on passenger and express transportation for the entire country are not available. However, figures on the business of two of the largest airports on the Pacific Coast—the Grand Central Terminal at Los Angeles and the Oakland Terminal at Oakland—may be indicative. At the present time the volume of traffic per month at Oakland Terminal is approximately 13,300 passengers and 1,500 packages of express; at the Grand Central Terminal the monthly traffic is about 5,100 passengers and 500 packages of express.

I have very briefly sketched the present scope of airway transportation. In all classes of such transportation the time between start and end of journey, including the time consumed in traveling between the airports and city, is the prime factor.

Were the established airway routes superimposed on a highway map of the United States, it would be seen that the airways very closely follow the routes of the main highways. This is only natural when it is considered that, in overcoming topographical barriers, it is as economical for an airplane to seek the low summit in crossing a mountain range as it is for an automobile; that air transportation business lies between centers of population as does highway transportation; that emergency landing fields must be near a highway



Project 581, Road No. 5, Hillsborough County.

in order to function to the best advantage; that highways properly marked may serve as navigation aids to the airplane navigator.

Airways are composed of terminal landing fields of airports, intermediate or emergency landing fields to be used by planes desiring to land before they have reached their terminal designation and other navigation facilities, such as lighting, marking, radio communication and meteorological service. Under the present plan, the Federal government has undertaken the primary care of the emergency landing fields, beacons and meteorological service, leaving the matter of terminal airports to the local authorities and private corporations.

The principal types of transportation to date have been waterway, railway, highway and airway. With respect to the manner in which they were and are being developed, they fall into two classes. Waterway and railway were developed by private corporations at their own expense, with some Federal assistance in the case of the railways and canals. These two classes provided at their own expense all of their facilities, such as boats, docks, trains, stations, roadbeds, etc. The highways and airways are of a different class. The public furnishes all the facilities except the vehicle in the case of the highway, and the airship and some of the airport terminals in the case of the airway. It appears, therefore, that development of airway transportation is a public matter and requires public or governmental direction and assistance similar to that extended to highway transportation.

To call attention to some specific air transportation problems relating to highways: In order for an airway transportation route to be justified the total elapsed time for transporting a commodity from a point from which the commodity could be shipped by other means to the ultimate destination must be

shorter or else there must be a financial saving. At the present time there is no financial saving, therefore there must be a time saving. An airplane travels twice or two and a half times as fast as any other form of transportation, but there is from 30 minutes to one hour consumed between airports and the ultimate destination. The saving in time may be accomplished by locating the airport as close as possible to the center of population, by constructing highways between the airports and the centers of population so designed as to reduce the time of reaching the center of population to a minimum, or a combination of both. There is also the opportunity of bringing adjacent communities tributary to an airport terminal by laying out arterial highways leading between them and the airport, thereby enabling them to have the advantage of faster transportation, and permitting the larger communities to be distributing points for airway commerce.

The constructing of the airports presents problems very closely related to highway construction, involving as it does, location of the port, grading of the site and surfacing of the ground from which the ships take off and on which they alight. The location of the port involves many problems common to highway location adjacent to large centers of population, such as property values, elimination of traffic congestion, etc.

With the development of vacation travel by airway, particularly the week-end travel to mountain lakes and isolated resorts, the future week-end congestion on recreational highways leading to resorts may be relieved, although there will be the necessity of providing suitable landing fields adjacent to such resorts. Such a development might result in postponing or even eliminating the necessity for constructing high-type recreational roads leading to such resorts. Trans-

portation of materials and supplies into these regions could be handled by means of a very low type of road.

With all the publicity and propaganda that has been developed favoring aviation, and the efforts of this country to make the people air-minded and to develop aviation, to date there has not been any extensive volume of private flying. At a recent meeting in Los Angeles of the State Chamber of Commerce it was very clearly brought out by one of the speakers that airplanes are being rapidly manufactured but that the problem of their use has not been answered, and the factories are facing a serious over-production.

Should private flying become popular and a machine of the flivver type with folding wings which could be run into one's garage be developed, small landing fields would be developed and these planes would develop a certain highway traffic from fields adjacent to towns and cities.

Illustrating the need for emergency landing fields for planes, there have been several instances in California where aviators were forced to land on the highway, one of these resulting in a wreck involving an automobile and a plane.

As indicating the trend of increase in private flying compared with motoring, it is only necessary to compare the stage of improvement of the airplane at

the close of the war and the number of private individuals using planes 11 years after the war, with the progress and the increase in the volume of motoring during the same period, or to go back to the increase 10 years preceding the war.

Private flying by owners is not increasing at this time as those commercially interested had hoped.

In conclusion, the volume of traffic developed to date by airway transportation is not sufficient to make a very satisfactory determination of its effect on congestion of the highways leading to and from airports. There is nothing to indicate, at this time, that air transportation will not be a high-class transportation, supplemental to and with practically no effect upon the volume of highway transportation.

In the development of ground facilities for air transportation, the engineering problems are largely those of the highway engineers.

The location, grading and draining and surfacing are the same problems that have already been successfully solved by the highway engineers. The co-ordination of interstate and intrastate routes are similar to those of our Federal Aid system.

In only a few instances is the knowledge of the highway organizations being called upon.—American Highways.

Detours and Maintenance of Traffic Control

By H. G. SHIRLEY, State Highway Commissioner, Virginia

THERE was a little club I belonged to a good many years ago and its members were endeavoring to improve conditions in the town. There was always some disagreeable work that had to be done, such as going to the various residents and asking them to remove trash from their property, clean up or make some changes that would be for the beautification of the town and improve its looks. In selecting committees the president designated quite a number on public relations and other subjects, but named one committee to take up the work above referred to and which he called "The Disagreeable Committee," meaning that it was up to this committee to handle that part of the club's work of a disagreeable nature. I was appointed chairman of the committee.

I think my good friend, the chairman of the program committee, finding a demand for a paper on such a disagreeable subject as "Detours," must have known of my work as chairman of the disagreeable committee, and assigned the subject to me. After the committee had worked for some time and given quite a bit of publicity to what its members believed should be done in the town, a demand was made that the chairman be dishonorably discharged, along with the entire membership. I am afraid before this paper has been finished the action of this association will be along similar lines.

Detours

Detours—Deliver us! There is no word in the English language, unless it is politician, that has been more abused, cursed and damned than the word Detour. I have the greatest regard for the politician, regardless of how much has been said about him, because a few of them have not played the game square,

there are thousands who have been leaders and have done the greatest service for their country and fellow-man. Likewise the word Detour has been abused and everything said about it. It means furnishing a reasonably safe and direct as possible passage around a piece of construction work and should be praised rather than damned.

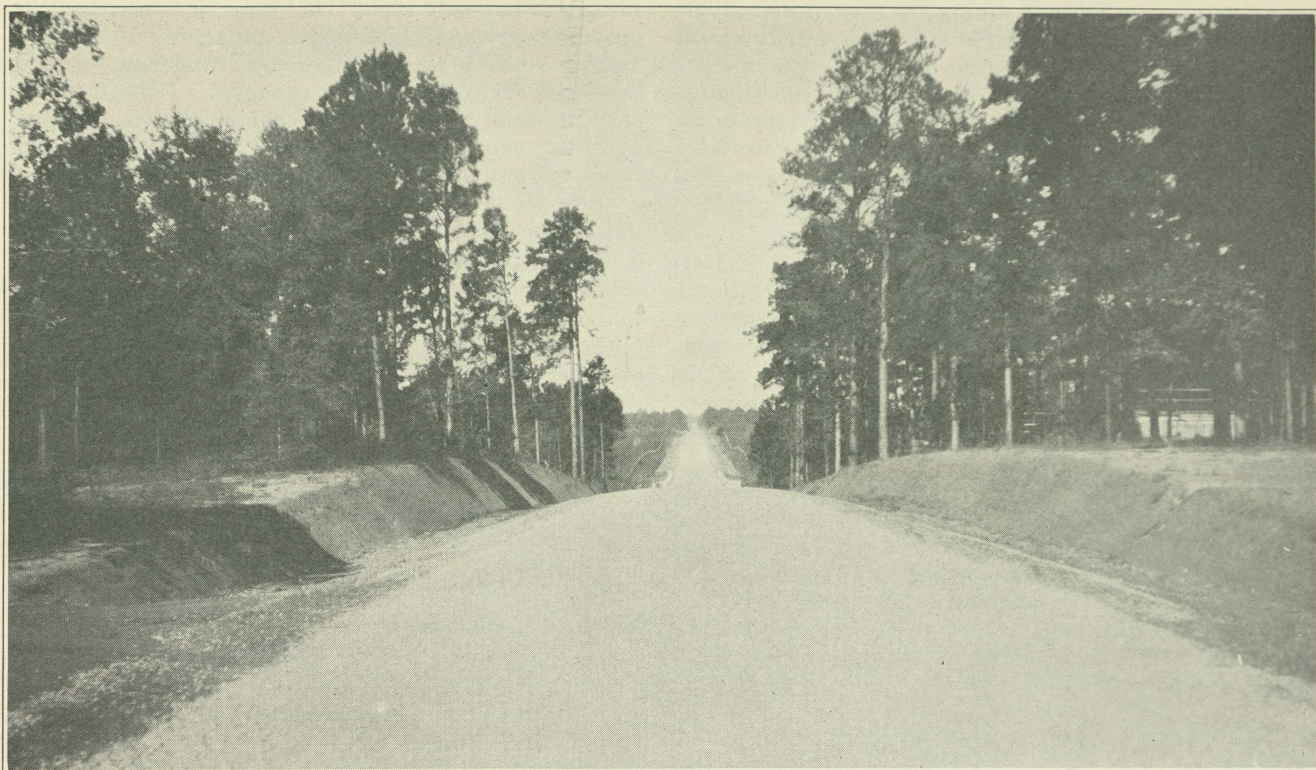
A number of states, sensing the great animosity the general public has towards detours and reading the public's psychology, have changed detour to the high sounding name of "Temporary Route," which sounds mighty good and is presented to this association as something that may be adopted as a standard.

The most important parts of providing detours are: First, condition; second, marking; and third, traffic control.

Conditioning

When traffic is detoured around the work, the detour must be put in condition, if it is not in such shape. This is generally done by putting in the necessary drainage, the shaping and grading with heavy equipment, and applying sufficient materials, such as stone, gravel, etc., to carry the traffic during the period of construction. The roadbed must be widened, guard rail and other safety structures erected.

If the surface material is soil, gravel or stone and is under heavy traffic, it should be treated with a dust layer. The same treatment is necessary where traffic is carried alongside of the work through closely built-up zones. The important feature is to keep the detour in the very best condition, regardless of where it is located, and give the user a satisfactory and safe road to travel. Anything less than this is not providing the traveling public with proper transportation facilities



Project 666, Road 6, Jackson County.

and the State Highway Department has not performed its public duty.

Various methods are used by the different states, some being so fortunate as to have practically no detours to keep in shape, they having so nearly completed their system that there is a lateral road in close proximity that can be used while the other road is being constructed. Others are through sparsely built-up sections and the roads being constructed are practically on new locations and there is no need of the detour, for traffic can be carried over the road under maintenance. Whereas in other states the territory is more closely built up and new construction follows generally along the old road, with various changes. It is necessary to close such roads for construction and provide a detour by using a county or township highway parallel or in close proximity thereto.

The general plan seems to be that where detours have to be maintained around, not over or adjacent to the work, they are maintained by the state under state supervision, using the same maintenance gang on the detour as was used on the road under construction.

This seems to be the general plan used by most of the states. However, before deciding on any method it is essential that a close study be made of the amount of traffic carried by the highway and how many additional miles would have to be traveled, what it would cost to put the detour in shape and maintain it, whether this detour is a county or township road and what benefit the expenditure would be to the county or township after the main highway has been opened.

Against this should be equated the cost of maintaining traffic over the work, the delays to traffic and the delays to the construction work, as well as certain damage to the unfinished surface.

When these conditions have been carefully examined and the cost estimated, then it can be fairly well

determined which method should be used. Where there is exceedingly heavy grading with large equipment units used, it is almost impossible to pass traffic over the work with any degree of promptness or safety and it is practically compulsory that the road be closed under such conditions.

Quite a large amount of information from a number of states has been secured as to the method of handling traffic during construction. On 936 construction jobs scattered through the various states taken at random, we find that of this number 588 had detours and 348 were carrying traffic either adjacent to or over the construction work, showing approximately two-thirds of the traffic being detoured and one-third carried over the construction.

Marking

Let us examine the custom of markings. This association with great deliberation and after many verbose pronouncements adopted as its standard by majority vote, various symbols denoting types of roads and detours. A close perusal of the various state highway maps, especially of the eastern half of the United States, shows that with one exception the states have not paid any attention to the standard symbol designating detours and have used various designs to denote the same. Modesty prevents me from naming the state that adopted the standard designated by this association. I am giving you these facts for your consideration.

Can we not find out why we adopt standards and then not use them? Is it that the word Detour has become into such ill repute with the public that we are shying off from showing it on the various state highway maps? It is my judgment and recommendation that the committee on standards reconsider its standard marking for detours and where there is construction work and the road is closed to traffic, use a

solid strip and a number giving the description of the detour around. Where traffic is carried over the work use a rectangle opened in the middle and a number designating the description of the same. Such markings are more noticeable and can be read very much better than the X marks and are preferable to them. Some states go even further and give more symbols, which, in my judgment, are not necessary, for the markings should be as simple as possible.

The guarding and signing of the work under construction, whether traffic is carried around, over or alongside, should be very carefully done. A warning sign should be placed at least 500 feet from the beginning of the work or the detour, notifying the public that the road is under construction or closed to thru traffic, or that traffic must proceed slowly, road under construction.

Proper lights must be displayed at night, luminous reflectors or various other lights sufficient to warn the traveler that he is approaching a piece of construction work, or a detour and must proceed with care.

Markings should be standardized and the standard signs adopted by this association be used so that the public will become familiar with what these signs mean and what to expect.

Barricades

Where traffic is barricaded out or it is necessary to turn off at an angle, it is very essential that a number of warning signs be placed from 500 to 800 feet from the barricade or detour and signs placed at intervals warning that there is a turn to the right or left and a barricade ahead.

The question of barricade is most important and it is customary to use various kinds such as heavy fences, gates, logs, log chains, and various other forms, but one of the most effective being used by several states and especially Michigan, is a paling fence such as is used for snow fence. This fence is of such a nature that if a reckless driver does not heed the warning sign and runs into it, it will not cause a serious accident or greatly damage the vehicle. Still it is of sufficient noticeability and stability to be easily seen by the motorist on approaching and of sufficient strength to make it rather difficult to break through.

This should be illuminated by either bomb-shell torches, reflectors, or both, at night.

Control of Traffic

The control of traffic over detours is rather a misnomer because where the road is not closed the general traffic laws prevail and where a road is closed of course there is no special law needed but comes under the general law of the state. Where traffic is carried over the work, special control will either be by traffic men at each end with the flag system, a system of lights, or phones, but one or the other of these methods is absolutely essential.

Lights may be worked by a central operator. The flag system by a flagman at each end where they can see the full length, and where the full length can not be seen by passing the flag over the work on the last car, or by the phone system from one traffic man to the other.

One of the very important features of controlling traffic is to have the proper warning signs as it approaches the construction work or zone to be detoured over or around. The warning and slow down danger signs should be erected well in advance and close

enough to be easily seen. Of course, it is necessary to provide barricades, lights, etc., but there will be some reckless drivers who plunge ahead and run into the barricade regardless of consequences. It is therefore most important that the barricade be of such a nature as to not cause serious accidents when they are run into, yet they must be of sufficient strength that they cannot be easily run over or pushed aside, and the fence heretofore referred to seems to meet these conditions in a very effective way.

There is always a certain amount of local traffic that originates within the work that will have to be taken care of and this is brought over the work or alongside of it and it is the duty of the contractor to so provide for this traffic. This, however, generally is of small volume and can be easily taken care of by the contractor and it is necessary that he bid accordingly.

No one of the methods suggested above, or hard and fast rules can be made to determine the method to be used, but a careful study of the various conditions surrounding the work and the availability of roads makes it a problem that must be studied for each job.

In other words, it comes down to the engineer using some good, sound judgment, basing his conclusions on a traffic count and various other conditions such as the availability of material, cost of keeping the detour in proper condition, as against carrying traffic over the work. A question of study in each individual case rather than any general rule. Take for instance if a detour would be two miles longer than the road under construction, 5 cents per mile would be a fair average expense per vehicle or 10 cents on each vehicle over the detour. One thousand vehicles would make \$100 a day additional cost to traffic going the two miles further, and this would mean \$3,000 a month, which would be a fair cost to be placed against the cost of taking it over the work, provided there were no great delays, the upkeep on the car not greatly increased, or the surface under construction roughened or damaged.

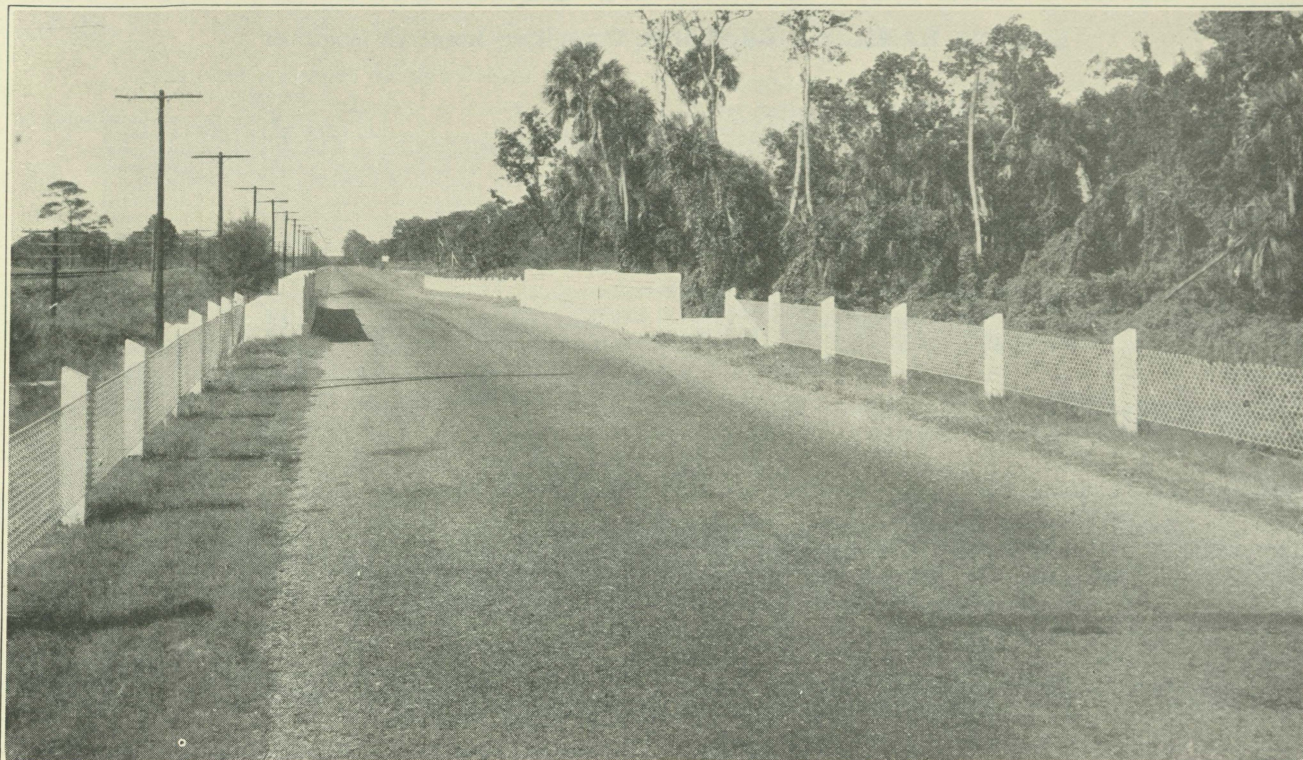
To sum up this short and random paper on the disagreeable subject of "Detours," I should say that the object to accomplish is to get traffic around, alongside or over the construction work with the least inconvenience, delays and cost possible to the public.

Very often the cost to the department will be higher but it will be small in comparison to the amount saved the traveling public, and this is the problem that must be solved before the road is closed.

One of the greatest faults has been with many highway departments and why the word Detour has come into such ill repute, is that they have not put up sufficient signs to direct traffic around the construction project. The roads often used as detours are of such a character that their construction would not indicate the through line of traffic, and needs more signs than the improved highway.

The writer wishes to acknowledge with grateful thanks the kindness of the highway commissioners and engineers who gave him the methods used in their state and many valuable details.

The only comfort I can hold out to my brother members on this subject is what I read in one of the highway magazines, which said "The straight and narrow road leads to eternal happiness, but if you want to have some fun, take the detour."—American Highways.



Federal Aid Project 36-A, Road 4, Indian River County, North of Vero Beach

74,780 Miles of Roads Improved in 1928

Federal Aid Mileage Totals 7,800, State Roads 21,390 and County and Local Units Built Over 45,000 Miles

COMplete statistics for the United States for the calendar year 1928 covering all roads constructed by Federal, State and local agencies, compiled by the Bureau of Public Roads of the U. S. Department of Agriculture, indicate that Federal aid has helped materially in the construction of the higher types of surfacings.

In the year a total of 74,783 miles of highways were improved, says the bureau. With state and Federal funds and the cooperation of the U. S. Bureau of Public Roads, the state constructed 7,814 miles of roads and 47 miles of bridges in the Federal-aid system. With state funds alone the states improved 21,391 miles of state roads, and the counties and other local units constructed 45,531 miles of county and local roads.

Consistent with their superior importance, as shown by traffic surveys, the Federal-aid road improvements were generally of higher type than improvements made on other state roads and on the local roads. As fast as funds become available, high-type surfaces are being constructed by state and counties where traffic requires them. Medium-type pavements, which cost less to construct than the high-type, are built where traffic is not so great, and the greater proportion of unsurfaced roads constructed are of local importance.

For purposes of comparison, the year's total mileage is divided into three general types—high-type surfacing, of which 8,286 miles were constructed in

1928, consisting of bituminous concrete, Portland-cement concrete, sheet asphalt, and brick; medium-type, of which 7,617 miles were constructed, these being surfaced with waterbound and bituminous macadam; and low-type, of which 58,880 miles were improved, these being graded and drained earth roads, sand-clay and top-soil and gravel.

In the year, the states, with Federal aid, improved 3,308 miles of Federal-aid roads with high-type pavements and bridges, or 39 per cent of the total; with state funds alone they constructed 3,461 miles, which was nearly 42 per cent of the total of that type built. The counties constructed 1,517 miles of high-type highways, a mileage which was 18 per cent of the total.

Of the medium-type construction, the states, with Federal aid, improved 602 miles of Federal-aid roads, which was almost 7 per cent of the total. With state funds alone they constructed 2,383 miles, or 31 per cent of the total of that type built. The counties improved 4,632 miles of road of this type, which was about 61 per cent of the total mileage of the type built in the year.

The largest mileage of low-type roads was constructed by the counties, 39,382 miles, almost 67 per cent of the total built in the year. The states, with Federal aid, improved 3,951 miles, or more than 6 per cent of the total, and with state funds alone they improved 15,547 miles, or 26 per cent of the total of these types built in the year.—Manufacturers Record.

And China Also Decides to Construct Highways

By KING HAMILTON GRAYSON, Consulting Research Engineer

A HALF-DOZEN years ago there were few highways in China which would even be called roads in the civilized countries. The old national highways, for the most part, are simply narrow tracks, footpaths and caravan trails, untraveled by any vehicle except the famous Peking carts. Broad, macadamized highways are now being constructed in many of the larger cities, such as Peking, Tientsin, Tsinanfu, Foochow, and Canton. However, what may be termed a first-class motor road, is only that section of some 25 miles from Peking to the Tsangshan Hot Springs; there were no others in that category until the new construction program started.

Now comes the announcement that Sun Fo, Minister of Railways, has introduced before the Kuomintang Congress a huge economic reconstruction program planned by the Nationalist Government, covering fifty years of work, and involving an expenditure of 12½ billion dollars in gold. This plan calls for the construction of 20,000 miles of railroads and 10,000 miles of motor highways. This is news of tremendous importance to the entire world, particularly since the highways are to be patterned after the very latest improved highways to be found elsewhere on the globe, and, whenever possible, to improve upon that construction. This means so many things of importance to China and then to the industrial world, as a whole that every foreign nation, and particularly the United States, should put one hundred per cent endorsement on the plan, and render every assistance possible toward its early and successful completion.

In fact, if the United States were to build the roads and highways in China and make the new republic a present of the cost, it would be the best investment ever made by the American people; the business that would accrue in countless other lines almost immediately, and the certainty of its continuing through several generations, would soon make such a huge sum as 12 billion dollars appear a mere nothing in comparison with the gigantic trade and profit returns that would result. However, despite the lack of assistance from the foreign world, China has been constructing roads. The following table indicates the present situation, regardless of revolutions and counter-revolutions:

HIGHWAYS OF CHINESE REPUBLIC

Province	Number of Miles	Condition
Metropolitan area	421	Constructed
Chihli Province	334	Constructed
Shantung	837	Constructed
Shansi	575	Constructed
Honan	681	Constructed
"	190	Partly constructed
"	380	Under construction
Kansu	70	Constructed
Hupei	465	Constructed
"	42	Partly constructed
"	270	Under construction
Hunan	100	Constructed
"	110	Partly constructed
"	60	Under construction
Anhui	125	Constructed
Kiangsi	13	Constructed
Kiangsu	350	Constructed
"	13	Partly constructed
Chekiang	107	Constructed
"	355	Partly constructed
Fukien	799	Constructed
"	13	Under construction
Kwangtung	295	Constructed
"	600	Under construction
"	325	Partly constructed
Kwangsi	166	Constructed
Yunan	11	Constructed
Szechwan	167	Constructed
Fengtien	300	Under construction
Chahar	1,420*	Constructed
Suiyuan	402	Constructed

* National Government highways; all the other roads are either private or provincial.

The Chinese deserve tremendous credit for the progress of highway construction during the past five years. One must constantly bear in mind that China is truly a continent, rather than a nation. The untiring efforts of Minister Ho Feng-lin and Vice-Minister Yang-Yu-hsu of the Army, Vice-Minister Yu-Kuo-han of the General Staff, Vice-Minister Wen-Shu-teh of the Navy, Minister P'an Fu and Vice-Minister Ch'ang Yin-huai of the Department of Communications, have been responsible to a great extent for the progress made. All these executives are men of great ability, broadly educated, and they will unquestionably prove to be the most important factors in the new proposed construction program.

Good Roads Movement Is Nine Years Old

One may now make regular motor trips of about 700 miles from Kalgan to Urga by a service maintained under the North-Western Motors. There are also a number of private enterprises operating as motor transport lines over the same route. The good roads movement in China was inaugurated on the fifth of May, 1921, and has been pushed persistently ever since, despite the revolutionary upsets. The thirteen main highways radiating from Peking will receive first attention in the highway program. On

Minnesota—Fifty-six heavy duty trucks were put into service by the maintenance division of the Minnesota highway department in July, as another step in the motorization of maintenance work on the state trunk highways. The trucks are of five standard makes and were distributed among the sixteen maintenance districts.

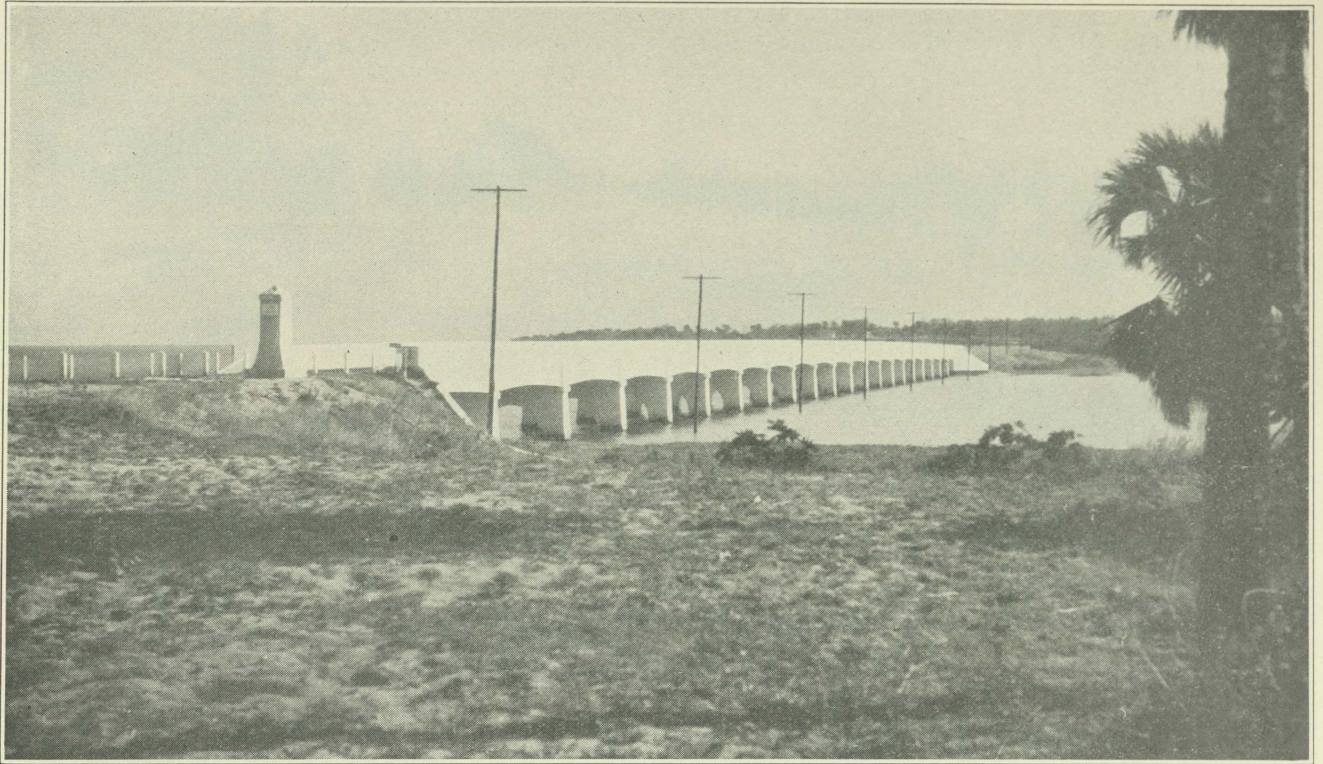
South Carolina—The members of the state highway commission are taking the initiative in establishing and encouraging organization in their judicial districts, having for their object highway beautification.

Arizona—Under an order issued by the highway department practically all advertising signs have been removed from the right of way of state highways.

Michigan—Road beautification is carried on by the maintenance field organization under the supervision of a trained forester in the residency or at the Lansing office.

Iowa—The state stands first in the 1929 construction season with 685.5 miles of concrete pavement under contract. Illinois is second with 626.

New York—Police Commissioner Grover Whalen of New York City has announced that arrangements are being made by the police department to furnish free to traffic policemen new white rubber uniforms for use in bad weather. These uniforms were tested recently on a busy corner in the city and were found to make traffic officers more conspicuous to motorists. —The Highway Magazine.



Federal Aid Project 39-A, Sebastian River Bridge, Brevard and Indian River Counties.

many of these there are now stretches of broad avenues lined in spots with trees, and paved in the most modern manner; but the greater portion are still mostly courier tracks furnished with inns, relay stations and military posts.

Unselfish Aid Sought by Young China

With the installation of the new Cabinet of the Nationalist Government, American influences became immediately prominent. This has a tremendous meaning, which few Americans truly appreciate. The Chinese are a grateful people; and they who prove to be the friends of the Chinese in their present attempts to modernize will be remembered through the coming generations. Unquestionably, China's first and foremost need toward ultimate modernization is modern highways. The Nationalist leaders recognize this paramount point; consequently, Sun Fo's resolution. It is likewise the great opportunity for which American manufacturers of road-making machinery should be alert; and those with proper far-seeing wisdom will now bend every means at their command to aid the Road Ministers toward achieving the goal. National highways must receive first consideration because over them must be transported the equipment for local roads and streets, for industrial development, and they must provide the sound basis for greater motor car sales.

A pertinent point was brought forth by Liang Li T'ang when he said: "If American industry will coordinate their efforts to aid Young China by sending us an efficient staff of engineers who will help us to plan first, then their salesmen can follow at the opportune moment and find a true basis for developing trade. Those engineers must be unselfish and statesmen-like, and their efforts must be for the benefit of China rather than for the gain of commercial interests. China will not forget such unselfishness,

and in due course those American firms who sponsor and provide the costs for such aid at this critical time, will reap their harvest later. But Young China demands friendly advisors—not dictators! Young China is going to progress until on a par with the rest of the world. And if the other nations will not assist us to chart the new paths, then China will do it alone, ultimately providing her own equipment instead of purchasing it abroad."

Dr. Wu contends that modern highways and education will do more to solidify China than all other efforts; he estimates that North America can become the greatest industrial center in the world if the United States and Canada will join hands toward aiding China in planning roads and educational systems and that these two factors will open limitless markets for every commodity that is produced in the United States.—The American City.

Three Times and Out.

Dear Doc: I don't go to church. The first time I went they threw water on me; the second time they tied me to a woman for life!

Woman Hater.

Yes, and the third time they will throw dirt on you!—St. Joseph News-Press.

"Which do you like better, balloon tires or high pressure tires?"

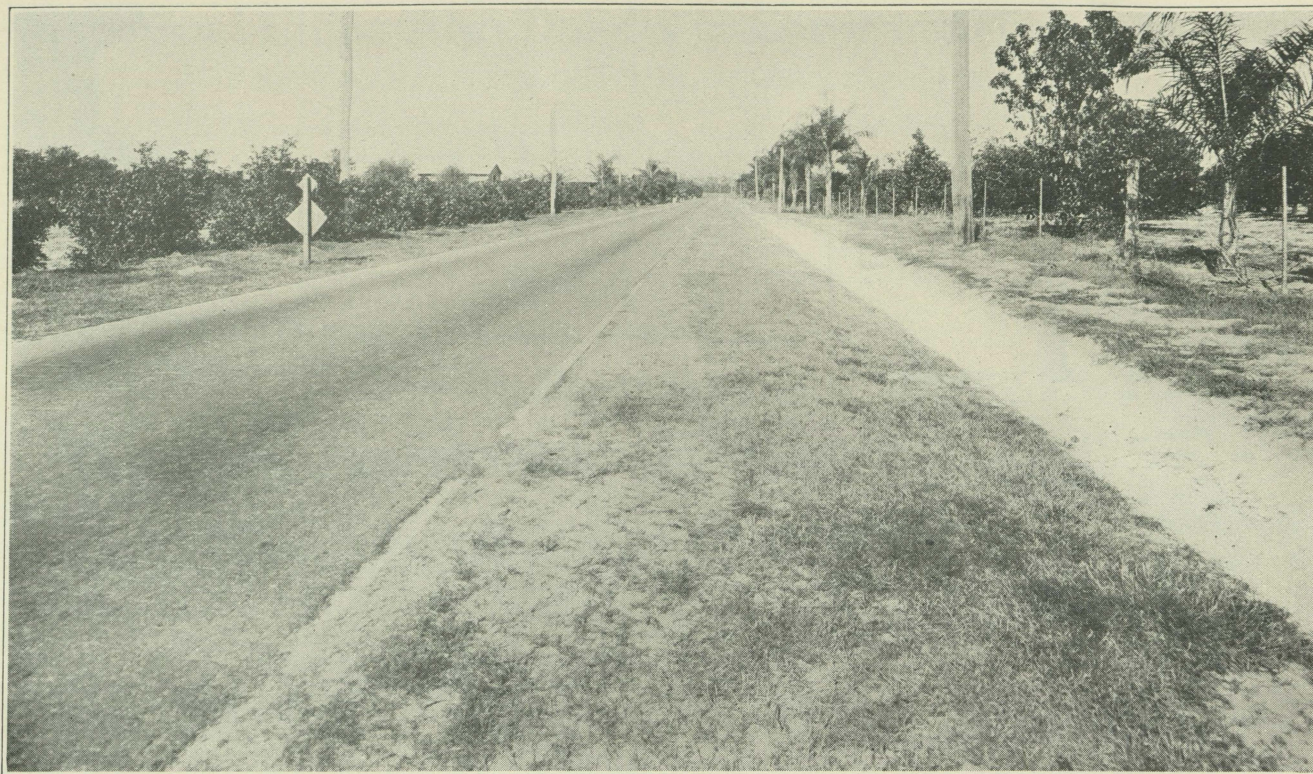
"I like balloon tires better."

"What kind of a car do you have?"

"I don't have any, I'm a pedestrian."—Grinnell Malteaser.

Visitor—"This smoking room is beautifully arranged."

Mr. Peck—"Yes; if only I were allowed to smoke in it, it would be fine!"—Answers.



Project 730, Road 15, near Dunedin, Pinellas County.

Parks and Highway Beautification

By GROVER C. DILLMAN, State Highway Commissioner, Michigan

WITH the constantly growing use of the automobile there goes an ever increasing demand for public facilities necessary for the fullest enjoyment of outdoor life. Every man has an innate desire urging him to seek the things of nature. The careless hand of a rapidly expanding population, striving for material wealth, has destroyed much with which our country was so richly endowed by nature, and it is now time that a helping hand be given to preserve for ourselves and our posterity a small part of our God-given heritage.

During the past twenty-five years a most remarkable change in highway transportation has occurred, contributing very materially to new standards of living. No longer are the activities of individuals confined to small communities. Automobile trips hundreds of miles in length, carrying people to all parts of the nation, are undertaken daily with no apprehension as to the outcome. People on account of the desire for travel, are spending no small part of the time on the road, and it is almost literally true to say we are living on wheels. What is the fundamental reason back of the desire for travel? Unquestionably the impelling motive is the eagerness of the individual to see things and to live close to nature. The works of man are interesting but one never tires of the handiwork of nature.

The preservation of natural beauty for the enjoyment of the public is a governmental duty. The Federal government, the states and smaller subdivisions have already dedicated lands for use as parks. These parks serve as recreation centers and possess educational and historic values in many instances.

During the last few years attention has been focused on another phase of preserving some of the beautiful things in nature, namely, roadside development. In the construction and maintenance of highways, three fundamental ideas should always be kept in mind: First, the matter of utility which involves location, alignment, grades, type of surfacing and other requirements determining its ability to accommodate the traffic which may be imposed upon it. Secondly, safety should be provided for by the elimination of sharp turns, by wide shoulders, by the removal of obstructions such as trees and mail boxes in close proximity to the traveled way, by a uniform system of warning signs, and by an intelligent enforcement of traffic regulations. Third, the appearance of the road is governed by the presence or absence of pleasing grades and alignment, hills and valleys, trees and pole lines, shrubs and vines, signs and mail boxes, rocks and wild flowers and a multitude of other things that go to make up the highway landscape.

It appears that relatively few states have well established programs for roadside development, therefore, on account of the lack of information as to the exact status of parks and roadside development in the various states this discussion shall be confined mainly to a treatment of the subject as found in the state of Michigan.

In 1885 Congress enacted a law transferring Mackinac Island and Fort Michilimackinac to the state for park purposes. For thirty-four years no additional park sites were secured, but in 1919 the legislature passed a law authorizing a comprehensive park system and placed the control of same under a park commis-

sion consisting of ten members. Provisions were made for the acquisition of sites by purchase, condemnation, gift or devise of land. In 1921 the legislature repealed that part of law providing for a park commission and transferred its powers and duties to the newly established Conservation Commission.

Since 1919, 65 park sites scattered throughout the state and having a combined area of 25,785 acres have been acquired. Care has been exercised in locating these sites in order that the scenic beauty of the state might be preserved for all time. These sites have been so located that they have a combined frontage of 28 miles on Lakes Michigan, Huron and Superior, 24 miles frontage on inland lakes and 12 miles frontage on 15 rivers.

Not all of the 66 sites owned by the state are available or equipped for general use. While the public is not barred from state-owned land, only 53 sites are equipped with sufficient conveniences and improvements to justify the encouragement of people to use them in large numbers. These parks are in charge of a caretaker who is provided with living quarters in the park. For the convenience of visitors rest rooms,

chairs, tables, stoves, fuel, drinking water and playground equipment for children are provided. Charging for the use of the park or any of its conveniences is prohibited by law.

Where these parks are not located on a state trunk line road it is the policy of the highway department to lay out and improve a new trunk line road connecting the park with the nearest state trunk line road. Already a number of such roads have been laid out and paved. Signs are also erected several miles each way from the park to enable strangers to reach them without difficulty.

A most extraordinary increase in the number of visitors to these parks during the last six years has been noted. In 1923 the attendance was 220,000, while in 1929 7,454,000 people with 1,500,000 automobiles visited these parks. The attendance this year is all the more notable when compared with the number of visitors to national parks for the year ending September 30, which is reported as 3,248,264 persons.

The state park system is supplemented by a county park system. The board of county road commissioners are authorized by law to function as a board of

Contracts Awarded by State Road Department January 1st, 1929, to December 20th, 1929

Proj.	Road	County	Contractor	Length Miles	Length Feet	Contract + 10%	Type
55	14	Alachua	L. M. Gray	16.77		206,412.32	R. B. S. T.
624	50	Hamilton	Manly Const. Co.	6.23		84,888.18	R. B. S. T.
858	4	Duval	F. S. Whitney	7.00		68,438.10	Mac. Asph.
678	10	Bay	McVay Lindsay & Son	5.00		9,295.00	Hauling
695	2	Lake	Manly Const. Co.	0.40		5,380.54	R. B. S. T.
6	1	Madison	Duval Engr. & Contr. Co.	5.45		91,560.17	R. B. S. T.
669-Y	27	Collier	Kerr and Lawrence	13.55		99,705.56	Grading
854	60	Walton	G. W. Byrd	9.81		85,160.28	Sand Clay
855	60	Walton	C. C. Moore Const. Co.	9.32		90,311.26	Sand Clay
661	2	Lake	Manly Const. Co.	.14		9,313.15	Sheet Asp.
767-688	10	Bay	H. W. Johnson		75	2,567.88	Timber
40-B	4	Brevard	I. B. Purdy			10,565.72	Embankment
806-A	25	Hendry	R. C. Huffman Const. Co.	11.00		32,594.05	C. G. & G.
806-C	25	Hendry	R. B. Stewart	11.00		44,761.37	C. G. & G.
806-D	25	Hendry	R. C. Huffman Const. Co.	12.76		62,950.91	C. G. & G.
62-B	24	Osceola	Florida Bridge & Const. Co.		789	115,447.66	Conc. Bdg.
518	5-A	Lafayette	Broadbent Const. Co.	17.57		244,783.73	R. B. S. T.
587-B	5-A	Columbia	Perkins & Lawson		99	11,405.71	Conc. Bdg.
678	10	Bay	McVay Lindsay & Son	4.00		13,860.00	Hauling
715	28	Union	L. M. Gray	5.26		70,922.96	R. B. S. T.
716	28	Bradford	Duval Engr. & Contr. Co.	11.22		157,799.23	R. B. S. T.
587	5-A	Columbia	Duval Engr. & Contr. Co.	4.43		53,885.30	R. B. S. T.
718	5-A	Columbia	Duval Engr. & Contr. Co.	8.22		101,724.95	R. B. S. T.
815	54	Okaloosa	G. W. Byrd	12.50		27,434.00	Sand Clay
717-706-A	28	Bradford-Clay	Manly Const. Co.	12.06		173,340.83	R. B. S. T.
749-750	14	Gilchrist	L. B. McLeod Const. Co.	8.52		100,722.27	R. B. S. T.
820	96	Jefferson	H. D. Spangler & Co.	9.38		63,008.18	G. & D.
821	96	Jefferson	H. D. Spangler & Co.	5.13		25,478.80	G. & D.
615	5	Sarasota	L. B. McLeod Const. Co.	1.20		20,359.90	R. B. S. T.
	25	Palm Beach	Southern Asph. Const. Co.	4.00		5,575.87	S. T.
64-A	17	Hillsborough	H. E. Wolfe Const. Co.	9.609		257,589.40	Concrete
64-C	17	Hillsborough	H. E. Wolfe Const. Co.	9.61		239,707.82	Concrete
728	10	Leon	Robert G. Lassiter & Co.	11.76		245,718.22	Concrete
65	5	Hillsborough	Fred D. Beasley		423.34	103,856.44	Concrete
742	13	Alachua	L. B. McLeod Const. Co.	7.65		85,343.11	R. B. S. T.
669-Y	27	Collier	Wm. P. McDonald Const. Co.	3.00		48,974.75	R. B. S. T.
695	2	Lake	Manly Const. Co.	6.03		89,689.93	R. B. S. T.
863	56	Columbia	L. M. Gray	1.476		30,078.51	R. B. S. T.
866	17	Hillsborough	Cone Bros. Const. Co.	.50		19,075.00	Asp. Block.
644-C	10	Wakulla	L. B. McLeod Const. Co.	5.05		89,542.16	R. B. S. T.
68-A1	4	Palm Beach	Powell Brothers		199.19	62,038.95	Concrete
68-A1	4	Palm Beach	Nashville Bridge Co.		40.0	27,199.70	Bascul
68-A2	4	Broward	Foley & Milane		46.5	27,703.83	Concrete
68-A3	4	Broward	Foley & Milane		46.5	24,259.40	Concrete
63-B1	4	Palm Beach-Broward	W. S. Lockman Const. Co.		191.12	57,531.88	Concrete
63-B1	4	Palm Beach-Broward	Nashville Bridge Co.		60.0	31,537.00	Bascul
63-B2	4	Broward	Murphy Const. Co.		203.81	50,706.64	Concrete
63-B3	4	Broward	Murphy Const. Co.		134.31	38,027.33	Concrete
721-B	3	Putnam	Austin Bros. Bridge Co.		368.58	120,321.41	Conc. & Steel
835	5	Marion-Citrus	Sahlman & Hogan Const. Co.		264.56	26,850.34	Concrete
62-A	24	Osceola	L. B. McLeod Const. Co.	1.10		19,774.92	R. B. S. T.
62-C	24	Osceola	L. B. McLeod Const. Co.	12.091		231,519.14	R. B. S. T.
63-A	4	Palm Beach	Morgan-Hill Paving Co.		9.212	264,747.95	Concrete
70	5	Charlotte	Raymond Concrete Pile Co.		4,378.4	901,166.53	Concrete
870	143	Palm Beach	S. J. Groves & Sons	10.88		115,289.57	R. B. S. T.
706-A	28	Clay-Putnam	T. B. Gillespie, Inc.	10.83		167,332.44	R. B. S. T.
Total				310.713	7,319.31	\$5,465,236.25	

county park trustees and are empowered to purchase and improve park sites. Twenty-one counties have acquired 74 parks and have equipped them similar to state parks. These parks are much smaller than state parks, having an average area of 38.6 acres whereas the state parks have an average area of 391 acres. Thirty-eight of these parks reported a combined attendance of 3,012,000 persons during the past season. The maintenance and operating expense of these same parks amounted to 4.5 cents per visitor.

In order that any roadside program may succeed it must be backed by sufficient laws to insure an unhampered development. Such laws should provide for securing wider rights-of-way. With a constantly increasing volume of traffic, wider pavements are inevitable and work done on roadside development today may be a loss tomorrow unless such work has been properly correlated with future road-width requirements.

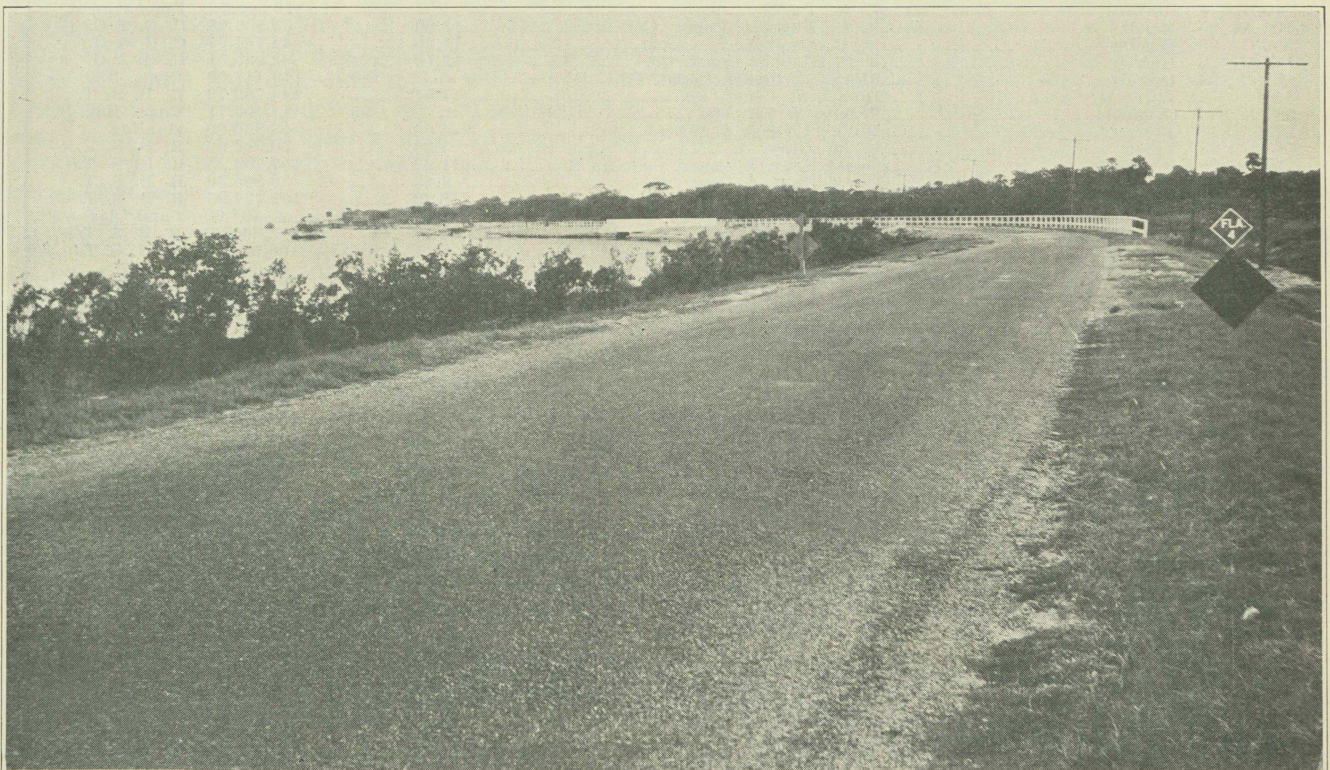
There is a quite general practice in this country to permit public-service corporations to erect pole lines, pipe lines, sewer, etc., on the highway right-of-way. This creates a conflict of interests. On the one hand it is imperative that the public-service corporation keep its lines clear by removing trees in some cases and trimming away the limbs in a great many cases. While on the other hand highway beautification demands that trees and shrubs be preserved in a natural condition or nearly so. Laws regulating these corporations are therefore indispensable.

Individuals as well as corporations require legal restraint to properly protect flowers, shrubs and trees growing on the highway right-of-way. Even with regulatory measures in effect it requires considerable time to educate the public to the fact that anything growing on the right-of-way is not common property.

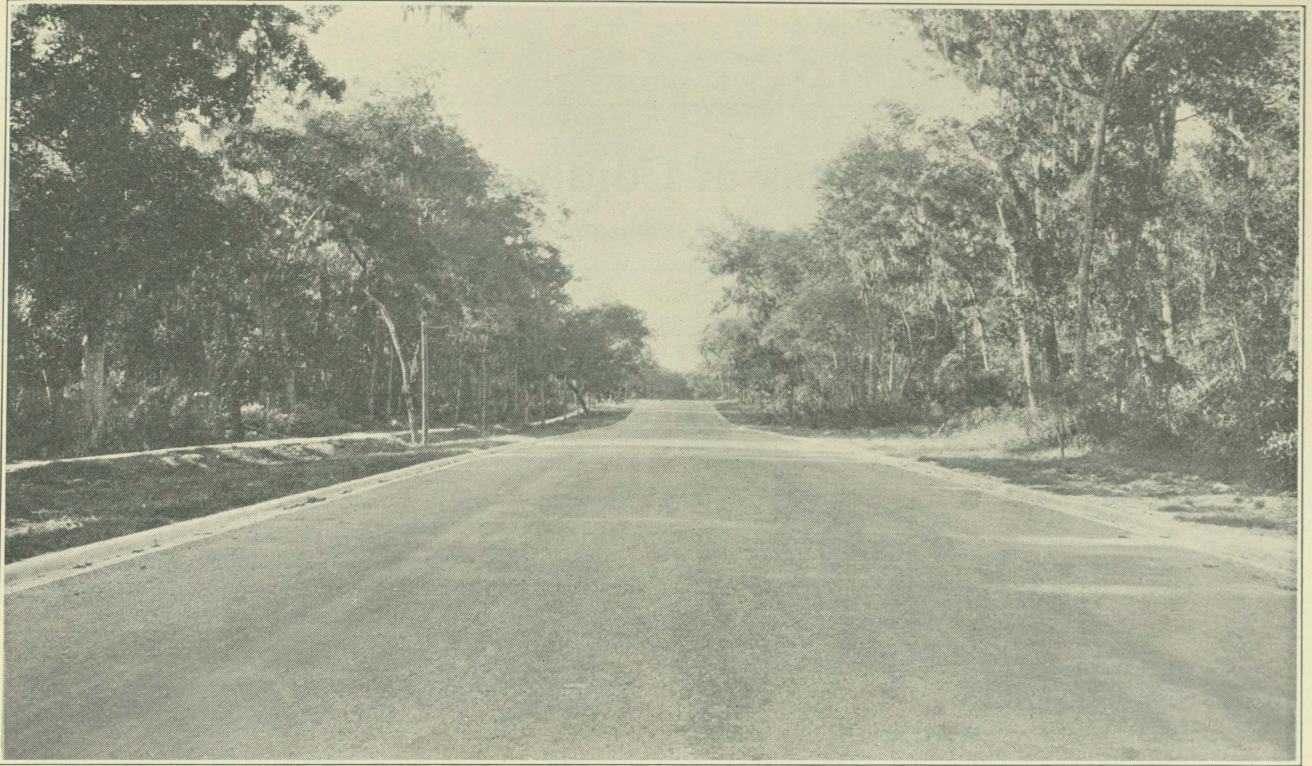
Outdoor advertising is very largely restricted to highways and the property immediately adjacent. If not prohibited, every tree, stump, fence and large stone would soon become covered with advertising signs, making a very undesirable blot on the landscape. These signs, which are intolerable on the highway right-of-way, are of doubtful value to the owner and the sooner their use is prohibited on and alongside all highways the better it will be for all concerned.

In addition to the laws just mentioned, provisions should be made to enable highway authorities to properly trim and otherwise care for existing trees and shrubs, to plant trees, to set out flowers and shrubs, to cut noxious weeds, to destroy litter and rubbish found along the road, to supervise planting by individuals and to control the erection of advertising signs at road intersections and railway crossings even though such signs are on private property.

It is just as important, or perhaps more so, that the enforcement and carrying into effect of all the laws requisite to roadside development be vested in highway authorities. Some very commendable pioneer work has been done by civic and patriotic organizations as well as legally constituted authorities, other than highway authorities, and through the joint action of all these, but it is believed the public interest will be more economically and efficiently served by placing all the details of roadside development under the exclusive control of the highway authorities. The unparalleled growth of highway transportation has already rendered obsolete roads that a few years ago were considered adequate for many years to come. Even highway officials failed to anticipate accurately future highway requirements, and it is all the more evident that other organizations doing roadside work will fail to a far greater extent in visualizing the requirements



Federal Aid Project 40-A, Road 4, Brevard County, near Grant



Project 595, Road 3, Volusia County, DeLeon Springs.

of the next generation and as a result much of their work may prove detrimental to future highway expansion. Roadside beautification is not accomplished in a day, or a year, but may require generations to reach its ultimate goal, hence the necessity for a broad program adjusted definitely to all phases of highway improvement, applicable tomorrow as well as today.

In 1921 a landscape engineer was employed by the Michigan State Highway Department to assist in carrying out the provisions of a legislative act designed to prevent the destruction of trees and regulate the activities of public service corporations using State road rights-of-way for their structures. Along with this duty the landscape engineer undertook the organization and supervision of tree planting as well as co-operating with construction forces in preserving trees and natural beauty of the roadsides.

In 1927 the maintenance division was authorized to take charge of roadside development. A forester was employed to devote his entire time to this work and it is the intention to eventually place a resident forester in each of the ten maintenance residences in the state. Already some of these places have been filled. Several county maintenance organizations having foresters are handling state trunk line maintenance. Gradually men in the various maintenance organizations who show an aptitude for this class of work are being assigned to tree trimming gangs, tree planting, sodding, seeding, grass and weed cutting and other roadside work for as much of the time during the year as funds and weather will permit. In this way it is hoped to build an organization from the ground up and make the filling of vacancies a matter of promotion.

Although roadside development is placed directly under the maintenance division of the Michigan State

Highway Department, other divisions are not relieved of responsibility in this connection.

The locating engineer varies the alignment to provide the best possible view of attractive scenery, to save existing rows of desirable trees, to preserve Indian mounds, and to protect other natural conditions adding to the scenic value of the highway.

The plan engineer investigates carefully the requirements of design essential to preserving as much as possible of the natural beauty found in the highway. Trees found within the construction limits are often saved by the use of a few feet of tile or a slight change in slopes.

Boulders are used to good advantage in bringing out the naturalness of the countryside. Springs are saved and developed. Trees and shrubs are removed to provide vision at intersections and railroad grade crossings and to open up vistas of surrounding country. Shrubs and young trees are transplanted to safe locations on the right-of-way. Sodding is designated for slopes where needed to prevent erosion and to cover up barren soils. To secure an early blending of the new road into the adjacent country, seeding is specified for shoulders, slopes, ditches, borrow pits and all other parts of the right-of-way disturbed during construction.

Construction engineers are charged with the responsibility of enforcing the specifications and plans as prepared by the plan engineer. By carefully following the plans desirable changes are noted, recommended and authorized in many instances. By the time a project is accepted from the contractor and turned over to the maintenance division the basis for future roadside development is well established.

During the current year \$50,000 has been spent by the maintenance division for virgin timber adjacent to

Status of Construction

THROUGH OCTOBER 31, 1929

Proj. No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Type	Per cent Complete
52	Robert G. Lassiter & Co.	1	Escambia	10.09				10.09	Concrete	98.00
62-A	L. B. McLeod Const. Co.	24	Osceola	1.10			0.00	0.00	S.T.R.B.	0.00
62-C	L. B. McLeod Const. Co.	24	Osceola	12.09			0.00	0.00	S.T.R.B.	0.00
63-A	Morgan-Hill Paving Co.	4	Palm Beach	9.21				0.00	Concrete	0.00
64-A	H. E. Wolfe Const. Co.	17	Hillsborough	9.61				0.00	Concrete	3.00
64-C	H. E. Wolfe Const. Co.	17	Hillsborough	9.61				3.55	Concrete	33.00
518	Broadbent Const. Co.	5-A	Lafayette	17.57			17.57	0.00	S.T.R.B.	76.00
587	Duval Engr. & Contr. Co.	5-A	Columbia	4.43			4.43	1.11	S.T.R.B.	84.48
644-C	L. B. McLeod Const. Co.	10	Wakulla	5.05			2.60	0.00	S.T.R.B.	40.00
669-Y	Wm. P. McDonald Const. Co.	27	Collier	3.00			3.00	0.00	S.T.R.B.	81.00
669-Y	State Forces	27	Collier	10.55			0.00	0.00	S.T.R.B.	0.00
678	McVay Lindsay & Son	10	Bay	9.70			9.70	9.70	S.T.R.B.	100.00
695	Manly Const. Co.	2	Lake	6.18			6.18	1.24	S.T.R.B.	79.00
706-A	Manly Const. Co.	28	Clay	1.14			1.14	0.00	S.T.R.B.	74.00
706-A	T. B. Gillespie, Inc.	28	Clay-Putnam	10.83			0.00	0.00	S.T.R.B.	0.00
707	Leon County Forces	43	Leon	5.31	5.31	4.95			Graded	93.00
715	L. M. Gray	28	Union	5.27			5.27	0.00	S.T.R.B.	77.94
716	Duval Engr. & Contr. Co.	28	Bradford	11.21			11.21	0.00	S.T.R.B.	78.10
717	Manly Const. Co.	28	Bradford	10.93			10.93	4.82	S.T.R.B.	87.00
718	Duval Engr. & Contr. Co.	5-A	Columbia	8.22			8.22	2.05	S.T.R.B.	82.83
722	R. J. Carroll	48	Jefferson	8.83	8.83	8.83			Graded	100.00
726	State Forces	19	Dixie	12.59			12.37	.63	S.T.R.B.	85.00
728	Robert G. Lassiter & Co.	10	Leon	11.76				6.29	Concrete	52.00
735	W. J. Bryson Paving Co.	40	Walton	13.72	13.72	13.58		13.58	Sand Clay	98.65
742	L. B. McLeod Const. Co.	13	Alachua	7.65			7.26	0.00	S.T.R.B.	65.00
743	Baker & Lewis	10	Bay	18.25			18.25	18.25	S.T.R.B.	100.00
749	L. B. McLeod Const. Co.	14	Gilchrist	7.81			7.81	.85	S.T.R.B.	78.40
750	State Convict Forces	14	Gilchrist	12.97	12.32	12.32			Graded	92.84
750	L. B. McLeod Const. Co.	14	Gilchrist	.71			.71	0.00	S.T.R.B.	90.00
751	W. J. Bryson Paving Co.	40	Walton	7.29	7.29	7.29		5.39	Sand Clay	90.45
752	W. J. Bryson Paving Co.	40	Walton	8.72	8.72	8.72		0.00	Sand Clay	66.05
755	B. Booth	17	Polk	11.22	11.22	11.00			Graded	98.00
756	State Forces	19	Marion	11.89			0.00	0.00	S.T.R.B.	0.00
766	State Convict Forces	10	Bay	8.74	8.43	8.00			Graded	72.00
781	F. W. Long & Co.	29	Okeechobee	9.00			9.00	9.00	S.T.R.B.	100.00
787	State Convict Forces	10	Walton	16.29	11.39	6.67			Graded	30.80
788	W. J. Bryson Paving Co.	10	Walton	17.54	12.25	9.45			Graded	54.61
798	State Convict Forces	13	Nassau	15.03	7.50	5.34			Graded	39.60
802-A	C. C. Hayes	10	Okaloosa	8.68	8.68	8.28			Graded	92.00
802-C	Curry & Turner	10	Okaloosa	10.24	10.24	9.62			Graded	90.00
803	Collins Const. Co.	10	Okaloosa	11.13	10.90	8.83			Graded	90.00
806-A	R. C. Huffman Const. Co.	25	Hendry	11.00	11.00	9.90			Graded	90.00
806-C	R. B. Stewart	25	Hendry	11.00	11.00	9.90			Graded	91.00
806-D	R. C. Huffman Const. Co.	25	Hendry	12.76	8.30	7.66			Graded	70.00
815	G. W. Byrd	54	Okaloosa	13.58				10.86	Sand Clay	80.00
820	H. D. Spangler & Co.	96	Jefferson	9.38	5.20	1.25			Graded	21.00
821	H. D. Spangler & Co.	96	Jefferson	5.18	4.14	2.90			Graded	53.00
832	State Convict Forces	10	Santa Rosa	16.01	4.70	1.50			Graded	5.00
833	State Convict Forces	10	Santa Rosa	8.02	5.20	0.00			Graded	2.00
840	State Convict Forces	115	Walton	10.45	8.88	6.53			Graded	58.00
842	W. J. Bryson Paving Co.	115	Walton	10.15	10.15	7.61			Graded	75.00
844-A	State Convict Forces	115	Okaloosa	7.10	7.10	7.00			Graded	98.00
844-C	State Convict Forces	115	Escambia	5.63	5.63	5.59			Graded	95.00
845	State Convict Forces	19	Taylor	8.57	8.00	7.25			Graded	75.00
846	State Convict Forces	19	Taylor	11.00	4.00	2.50			Graded	35.00
854	G. W. Byrd	60	Walton	9.81	9.04	4.76		0.00	Sand Clay	43.55
855	C. C. Moore Const. Co.	60	Walton	9.33	9.33	8.40		2.33	Sand Clay	73.50
863	L. M. Gray	56	Columbia	1.48	1.48	1.41	1.41	0.00	S.T.R.B.	76.35
Total complete October 31st, 1929					2945.06	2898.28	1526.07	2239.35		
Complete month of October					18.09	16.44	10.23	34.95		
Total complete September 30th, 1929					2926.97	2881.84	1515.84	2204.40		

TOTAL MILEAGE COMPLETE

	Concrete	Brick	B. C.	S. A.	B. M.	Asph. Block	S.T.R.B.	S.T.S.C.	S.C.	Marl	Total
Complete to Sept. 30, 1929	316.78	17.13	39.75	114.75	109.75	23.70	1242.23	226.39	184.76	27.58	2302.64
Complete month of Oct.	6.19						12.27		5.16		23.62
Complete to October 31, 1929	322.97	17.13	39.75	114.75	109.75	23.70	1254.50	226.39	189.92	27.58	2326.26

state trunk line roads. For tree trimming, shrub work, transplanting, etc., a sum of \$60,500 was spent and \$25,669.45 was used for planting and caring for trees on new construction jobs. For next year a budget has been prepared providing for, in addition to general roadside trimming and transplanting and roadside cleanup at an estimated cost of \$250,000, the planting of 12,500 deciduous trees, 500,000 pine seedlings, 5,000 shrubs, estimated at \$50,000 and additional virgin timber to cost approximately \$50,000.

Old lake and stream signs were replaced with new signs during the year. These signs giving the name of a lake or stream near which they are erected have been the subject of considerable favorable comment. During next year distance and direction signs for points of historic interest will be erected.

While roadside beautification is largely a matter of preserving in their natural state native trees and shrubs found on the right-of-way, there is a decided need for tree planting along barren stretches of road. Trees are invaluable in the scheme of roadside beautification. Neglecting the aesthetic value the cost of tree planting can be justified from a utilitarian standpoint. They increase the value of adjoining land, prevent erosion, serve as wind-breaks and control snow-drifting; provide a source of food where nut-bearing and fruit-bearing varieties are planted; protect the roadbed from the hot sun; prevent shifting of sand dunes, and provide nesting places for birds.

The benefits to be derived from parks and highway beautification are many and far-reaching. There is no way of estimating the recreational benefits but the attendance at parks and the marked preference shown for roads having well developed roadsides is sufficient evidence to warrant all expenditures for this purpose that have been made.

Parks and roadsides have an educational value that can not be overlooked. All parks and roadsides are available for study and research. The masses obtain a knowledge of nature that can not be secured in any other way and when one considers the millions that are constantly using the highways and parks the extent of the benefits can not be measured.

Since no hunting is allowed in parks they are game refuges for wild life in general. While roadsides are not so protected nevertheless trees and shrubs furnish nesting places for birds and the propagation of wild life is thereby benefited.

Parks and roadsides are in effect forest preserves. Our rapidly diminishing forests are in danger of complete destruction, and while no attempt is made to grow timber for commercial purposes our parks and roadsides do serve in helping to preserve for our children trees that would otherwise soon become extinct.

Scenic views from highways over lakes, rivers and landscapes are preserved. In many instances these views are being cut off by the erection of houses and other structures. If here and there spaces between highways and scenic views can be kept open by establishing parks untold pleasures will be realized by millions of people on the highways.

Michigan parks and highways contribute immeasurably to the enjoyment of millions annually. Tourists by the thousands come from every state in the nation and spend their vacations in our parks and on our highways. It is sincerely hoped that the contacts

made by visitors from sister states will result in a movement for more parks throughout the nation and the development of a keener sense of appreciation of roadside beauty.—American Highways.

BIG AUTO CHANGES AHEAD, DECLARES C. F. KETTERING

America can look forward to tremendous changes in automobiles and in conditions surrounding their use, according to Charles F. Kettering, president and general manager of the General Motors Research Corporation and of the Dayton Engineering Laboratories Company, in an interview in the American Magazine.

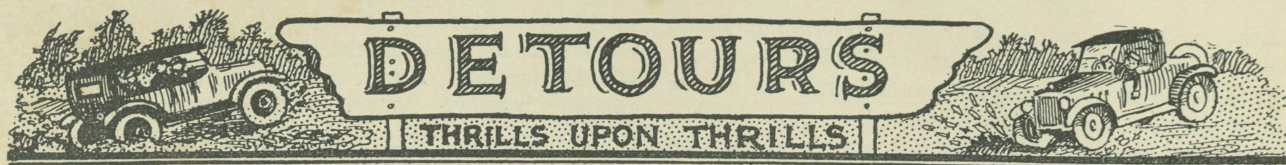
It is all the result of dissatisfied customers, he adds. "If customers had always been satisfied with their automobiles, they would still be running around in those trick horseless carriages that were hailed in the gay nineties. The thing that saved the automobile business was that people didn't stay delighted with the first one."

"People often ask me why we do not make an automobile and let it alone at least until they get their first cars paid for," says Kettering. "Does anyone seriously think that the automobile industry should stop trying to make better automobiles? Consider this point for instance: You put a gallon of gasoline into your car. It is possible to get 20 per cent efficiency out of that gas under ideal conditions. In other words, about 92 cents out of every dollar's worth of gasoline goes up in smoke, moisture and bad smells. About 8 cents worth of it drives the car. Does anybody think we ought to stop trying to put more of the gasoline dollar to use? Take the brakes on a car. If people were using the same kind of brakes that were on cars ten years ago, the roads would be strewn with wreckage.

"We have developed the automobile pretty far, though we have only scratched the surface, but meantime the country has not adapted itself to the uses of the automobile. The auto was born into a horse-and-buggy world. And, by and large, it is still running through a horse and buggy world. You buy a car that will go sixty miles an hour with ease. But make a trip to a town sixty miles away and see how long it will take you to get there—certainly two hours and maybe more. Why? Because you will have to pass through a dozen small towns and in each one you will be routed through the busiest street in town. You will slow upon your trip and will get in the way of the townspeople who have legitimate business in the town. If the country were built for the automobile, you would go along an express highway, clear around the busy streets of all of the towns and you would make your sixty-mile journey in an hour. And this will come so quickly now that people may be surprised at it.

"This is only an instance to illustrate innumerable changes that we are going to make in the physical layout of our towns, our streets and highways in the next ten years. And we must not overlook the new cities which will grow up and which will be built on the 1930 and 1940 models, and because they are adapted to conditions of modern life, may put some serious kinks in the old model cities."

All these changes, continues Kettering, will be the result of dissatisfaction of automobile customers. "If you want to see plenty of satisfied customers," he says, "go to China. A world full of satisfied customers would kill business dead as a doornail."



First Fond Illusions

The Sister: "Captain Randall proposes in this letter. I wonder if he really loves me—he's only known me a week."

The Brother: "Oh, then, perhaps he does."—Humorist.

Next

The nervous lady passenger approached the tired man at the information desk.

"Can I board the 10:40 train before it leaves?" she asked.

"You'll have to, madam," he replied. "Next."—Trindl Tips.

Couldn't Wait Forever

A road contractor ordered a carload of material from his jobber. The jobber wired him: "Cannot ship your order until last consignment is paid for."

The contractor wired back: "Unable to wait so long. Cancel the order."

Chasing the Overhead

Judge—"Why have you not made these alimony payments?"

Defendant—"I can't start till week after next, Judge. There are still two installments due on the engagement ring."

Presence of Mind

The Judge: "This lady says you tried to speak to her at the station."

Salesman: "It was a mistake. I was looking for my friend's sister, whom I had never seen before, but who's been described to me as a handsome blonde with classic features, fine complexion, perfect figure, beautifully dressed and —"

The Witness: "I don't care to prosecute the gentleman. Anyone might have made the same mistake."

"I want to be procrastinated at de nex' corner," said the negro passenger.

"You want to be what?" demanded the conductor.

"Don't lose your temper. I had to look in de dictionary mys'f befo' I found out dat 'procrastinate' means 'put off'."

Granddaughter (being lectured): "I seem to have heard that the girls of your period 'set their caps' at men."

Disapproving Grandmother: "But not their knee-caps."

New Bidder: "I've just landed a contract in good stiff competition and twenty thousand wouldn't buy it from me."

Experienced Bidder: "I'm one of the twenty thousand."

The Difference

Rastus: "I tells you, Sambo, I done found out de difference between de men and de women at las'."

Sambo: "What — what is it?"

Rastus: "Wall, a man'll gib two dollars for a one dollar thing dat he wants, an' a woman'll gib one dollar fer a two dollar thing she don't want!"

They had just met at Atlantic City and were sitting on the beach.

She: "What a wonderfully developed arm you have."

He: "Yes, I got that playing basketball. By the way, were you ever on a track team?"—Alabama Highways.

A live wire salesman rushed up to the home of a doctor in a small village about 3 a. m. and asked him to come at once to a distant town.

The doctor cranked his flivver and they drove furiously to their destination.

Upon their arrival the salesman asked, "How much is your fee, doctor?"

"Three dollars," said the physician in surprise.

"Here you are," said the salesman, handing over the money; "the blamed garage keeper wanted \$15 to drive me over when I missed my train."—Maine Motorist.

A Striking Feature, All Right

An automobile advertisement says that "you will be struck by the superior accessories provided." We hope that doesn't include the bumper.—Ottawa Journal.

Golfer (who has just gone around in 112): "Well, how do you like my game?"

Caddie: "I suppose it's all right, but I still prefer golf."—Tit-Bits.

The statistician who claims that the automobile industry has not yet reached the saturation point ought to ride in a rumble seat during a rain.—Life.

"Are you saving any money since you started your budget system?"

"Sure. By the time we've balanced it up every evening it's too late to go anywhere."

Cause and Effect

"I heard the most perfectly darling radio program last night," Miss Sparker gushed.

"Yes, wasn't it wonderful?" agreed her very dearest girl friend. "I didn't have a date either."—Arizona Highways.

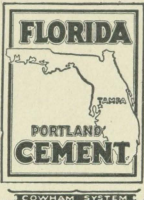
"Did you manage to give the cop the slip?"

"No, he gave me one."—Exchange.

Florida Cement

EXCEEDS

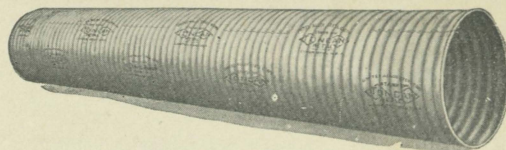
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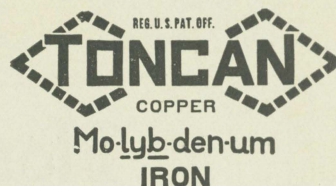


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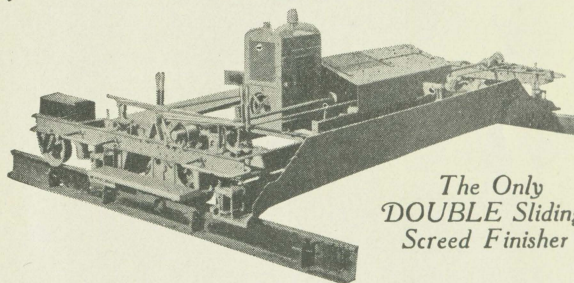
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